Papers of BAS
Humanities and Social Sciences
Vol. 13, 2026, No. 1

Digital inequalities among young Roma mothers in Bulgaria

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Abstract. This article examines digital inequalities among young Roma women with children in Bulgaria, focusing on how gender, ethnicity, age, and socio-economic status intersect to shape their employment trajectories and digital practices. Drawing on qualitative data from semi-structured interviews and a focus group conducted in the Fakulteta neighbourhood in Sofia, the study explores how young Roma mothers navigate labour market participation after childbirth. The findings reveal that employment decisions are primarily structured around childcare responsibilities, often resulting in downward occupational mobility, interrupted skill development, and constrained digital engagement. The analysis employs the concept of second-level digital divide as its primary analytical lens, situating the observed patterns within a broader framework of socio-economic stratification, and draws on intersectional concepts to show how multiple axes of disadvantage – gender, ethnicity, age, and parental status – compound structural barriers in ways that cannot be reduced to any single factor. The article demonstrates that digital inequality must be situated within broader socio-economic constraints, including poverty, care responsibilities, and ethnic marginalization, while being examined through its own specific mechanisms of access, skill levels, and meaningful use. The article contributes to debates on digital inequality by emphasizing the importance of contextual and intersectional approaches when studying marginalized populations.

Keywords: young Roma women with children, digital inequalities, second-level digital divide, gender, ethnicity, intersectionality

Introduction

Research on ethnic minorities in Europe has consistently documented persistent structural inequalities in access to education, employment, housing, and social participation. Among these groups, Roma communities – estimated at 10–12 million people across Europe – are widely recognized as the most socio-economically marginalized (European Commission 2020; FRA 2022). Empirical evidence from the European Union Agency for Fundamental Rights shows that over 80% of Roma in the EU are at risk of poverty, while only 27% complete

upper secondary education and less than 50% are in paid employment, often in precarious and low-skilled jobs (FRA 2022).

In Bulgaria, these disparities are particularly pronounced. National and comparative studies indicate that Roma populations experience disproportionately high levels of poverty, low educational attainment, and labour market exclusion (Tomova, Stoytchev 2022; World Bank 2020). Despite a growing body of research documenting these inequalities, the question of digital inequality within Roma communities – especially among women with caregiving responsibilities – remains insufficiently explored.

This article addresses this gap by examining how young Roma mothers navigate employment decisions and digital practices in the context of motherhood. It asks: (1) What factors shape employment choices among young Roma women with children?, (2) How are experiences of discrimination structured along the lines of ethnicity, gender, and age?, and (3) What role do digital skills and access play in overcoming or reinforcing exclusion?

A central conceptual premise of the article is that digital inequality, labour marginalization, and social exclusion are analytically distinct yet mutually reinforcing phenomena. Digital inequality refers specifically to disparities in access, skills, and meaningful use of digital technologies; labour marginalization to structural barriers in employment participation and career development; and social exclusion to the broader processes of marginalization from civic, cultural, and institutional life. While these dimensions overlap in the everyday lives of young Roma mothers, treating them as separate analytical categories allows for a more precise account of how disadvantage is produced and reproduced. The analysis draws primarily on the second-level digital divide framework (Hargittai 2002; Van Dijk 2005; Van Deursen, Van Dijk 2014) to examine how educational, socio-economic, and labour-market inequalities translate into disparities in productive digital skills and competences, and employs intersectional concepts to illuminate the specific ways in which gender, ethnicity, age, and parental status compound these disadvantages.

Digital inequality in Europe: Conceptual and empirical landscape

Digital inequality has emerged as a central concern in contemporary European research, reflecting broader transformations associated with the expansion of the information society. While early studies conceptualized the "digital divide" primarily as a question of access to information and communication technologies, more recent scholarship emphasizes its multidimensional character, encompassing disparities in access, skills, usage, and outcomes (Van Dijk 2005; Helsper 2021; Robinson et al. 2015).

A crucial theoretical development within this literature is the concept of the second-level digital divide, which shifts attention from access to technologies towards the differential capacity to use them productively. Hargittai (2002) demonstrated that individuals with lower educational attainment, lower income, and less professional experience differ systematically not only in whether they use the internet, but in how effectively and for what purposes they use it. Van

Deursen and Van Dijk (2014) extended this framework, showing that content creation skills, information navigation, and strategic online competences are strongly stratified by socio-economic background. This framework is particularly relevant for understanding the Roma women in this study: all three cases involve individuals who have some form of digital access and use, yet whose productive digital competences remain limited, largely due to the structural position they occupy in the labour market and in care arrangements.

Cruz-Jesus, Oliveira, and Bação (2012) prove that there is a persistent digital divide between countries in the EU, which is closely linked to economic development and the level of integration in the Union. Across the European Union, a substantial body of empirical research demonstrates that digital inequalities are systematically structured along socio-demographic lines. Data from the European Commission's Joint Research Centre show that 36% of adults in the EU lack at least basic digital skills, with the highest levels of exclusion observed among older individuals, those with low educational attainment, and economically inactive populations (European Commission 2022a). Eurostat data confirm that individuals with low levels of education are more than twice as likely to lack basic digital skills compared to those with higher education (Eurostat 2023). EU-wide analyses also point to a persistent East–West divide: while over 50–60% of individuals in countries such as the Netherlands, Finland, and Denmark possess at least basic digital skills, this share drops below 30% in Bulgaria and Romania (Eurostat 2023; Cedefop 2022).

Scholars conceptualize the digital divide as a stratified continuum, distinguishing between non-users, basic users, and advanced users (Blank, Groselj 2014; Robinson et al. 2015). These typologies highlight that digital engagement depends not only on access but also on the capacity to use technologies in meaningful and outcome-oriented ways – a distinction conceptualized as the "second-level digital divide" (Hargittai 2002; Van Deursen, Van Dijk 2014). Differences in digital competences and the ability to navigate online environments reproduce and amplify existing social inequalities. Cruz-Jesus, Oliveira, and Bação (2012) demonstrated, in an early cross-national European study, that the socio-economic dimensions of digital stratification are deeply embedded in national contexts, with educational attainment being among the strongest predictors of digital engagement across the EU. The report "Digital Inclusion of Roma: Current Patterns, Trends, and Barriers" (Roma Civil Monitor 2024) concludes that the digital exclusion of Roma is the result of a combination of socio-economic inequalities, insufficient access to technology, and limited digital skills, which requires specialized measures to promote digital inclusion. Gomes and Dias (2025) confirm that this pattern persists in recent data and identify distinct typologies of digital inclusion across EU member states.

A growing body of European research has specifically focused on the digital exclusion of Roma communities. Studies from the FRA Roma surveys (FRA 2022; FRA 2024) and the Roma Civil Monitor initiative (2023) indicate that Roma populations face compound barriers to digital inclusion – limited device access, low levels of digital literacy, and structural discrimination – all closely linked to broader conditions of poverty and spatial segregation. Munté-

Pascual et al. (2025) examined how Roma communities in Spain developed digital empowerment strategies during COVID-19, demonstrating that digital inclusion is achievable even in structurally disadvantaged communities when targeted support is available. Miranda et al. (2025) further document Roma girls' engagement with digital health tools in the context of European digital transformation, illustrating the health dimension of digital inclusion. Importantly, these inequalities are internally differentiated by gender, age, and migration status, which significantly shape patterns of access and use (Markova, Yordanova, Tosheva 2023; Petkova 2023). Young Roma women with children occupy a specific position at the intersection of gender norms, caregiving responsibilities, and socio-economic constraints, limiting both their labour market participation and their opportunities for developing digital skills.

Within the broader European context, research on Bulgaria remains limited, particularly regarding the intersection of ethnicity, gender, and digital inequality. This article addresses that gap, situating qualitative findings within the European research landscape and advancing a contextually sensitive understanding of digital inequality through both the second-level digital divide framework and intersectional concepts.

Roma in Bulgaria: Social and structural context

Roma constitute between 4.4% (official census data) and up to 10% (survey-based estimates) of the Bulgarian population, reflecting both underreporting and the fluidity of ethnic self-identification (NSI 2021; FRA 2022). Roma communities in Bulgaria are highly heterogeneous, differing in language, religion, migration patterns, and socio-economic status. Despite this internal diversity, empirical research consistently documents disproportionate structural disadvantage: 80% of Roma in Bulgaria are at risk of poverty; only 10–15% complete upper secondary education; approximately 50% are in paid employment, often in low-skilled and insecure jobs; and a significant share live in segregated neighbourhoods with limited access to infrastructure and public services (FRA 2022; Tomova, Stoytchev 2022; World Bank 2020).

The Fakulteta neighbourhood in Sofia – one of the largest urban Roma settlements in Bulgaria – exemplifies such dynamics. It is characterized by high population density, a mix of formal and informal housing, strong internal kinship networks, and historically low levels of institutional trust. Its selection as a research site is analytically driven: the concentration of structural disadvantages makes it a productive context for examining the intersection of digital and labour inequalities. This specificity, however, limits broader generalization beyond similar urban Roma contexts.

Digital access and digital poverty in Bulgaria

Official statistics suggest relatively high internet penetration in Bulgaria: approximately 84% of households have internet access, and regular use is reported by around 79% of individuals (NSI 2023). However, disaggregated data reveal significant inequalities. Individuals with low educational attainment

are over twice as likely to lack basic digital skills; rural and economically disadvantaged households experience lower-quality connectivity; and device sharing within low-income households limits individual access (Eurostat 2023).

Within Roma communities, digital inequality takes on a context-specific and often paradoxical character. In households with members working abroad, remittances may enable relatively high levels of smartphone ownership and mobile internet access. Conversely, in contexts of deep poverty, digital access becomes secondary to basic survival needs, and devices may be shared or entirely absent (FRA 2022; Markova, Yordanova, Tosheva 2023). This means that digital exclusion may be statistically underrepresented – mobile access can mask deeper inequalities in meaningful digital use – while being socially deprioritized, as immediate material needs outweigh digital participation.

This pattern aligns directly with the second-level digital divide framework: the relevant inequality is not primarily one of physical access (smartphones and internet connections are generally available), but one of productive digital competence – the capacity to use digital tools in ways that generate employment outcomes, develop transferable skills, or expand participation in the broader digital economy. Understanding digital exclusion in such contexts therefore requires a relational and context-sensitive approach that situates digital practices within everyday survival strategies and socio-economic constraints.

Theoretical framework

Digital inequality and social stratification

Digital inequality represents a new form of social disparity, closely linked to the development of the information society, but deeply intertwined with traditional forms of inequality related to class, ethnicity, and gender (DiMaggio, Garip 2012). Social inequalities are not merely reflected in the digital sphere but can be amplified within it: the technological revolution does not affect all social groups equally, and its benefits are distributed along pre-existing lines of stratification. This article focuses on how educational, socio-economic, and care-related inequalities translate into disparities in productive digital skills, with gender and ethnicity operating as additional structuring axes.

The primary theoretical lens of this article is the second-level digital divide (Hargittai 2002; Van Dijk 2005; Van Deursen, Van Dijk 2014). This framework moves beyond the question of physical access to examine differences in the quality and productivity of digital engagement. Individuals at the second level of the divide have access to devices and connectivity but lack the skills to use digital technologies in ways that produce positive employment or social outcomes. For the Roma women studied here, the relevant barriers are not the absence of smartphones or internet connections – all three cases involve basic digital access – but the structural conditions that prevent the development of productive, employment-relevant digital competences.

Gender and digital inequality

Research indicates persistent differences between genders in digital technology use. Women tend to use the internet for shorter periods, engage in a more limited range of online activities, and report lower levels of digital self-efficacy than men (Hargittai, Shafer 2006; Wasserman, Richmond-Abbott 2005). Offline gender roles and stereotypes are reflected in online behaviour, shaping the nature and scope of women's digital engagement (Cotton, Jelenewicz 2006). In Bulgaria, available data show a small gender gap in internet access – 80% of men and 78% of women report using the internet (NSI 2022) – a figure that conceals significant differences in the quality, depth, and professional orientation of digital engagement, particularly among disadvantaged groups.

Ethnicity and digital inequality

Ethnic minorities consistently show lower rates of internet use and digital engagement compared to majority populations (Correa, Willard-Hinsley, Gil de Zuniga 2010; Markova, Yordanova, Tosheva 2023). Studies also document lower levels of social capital among ethnic minorities, limiting the social resources and networks that support digital skill development (DiPrete et al. 2011; Petkova 2023). Digital inequalities along ethnic lines therefore reflect not merely differences in access, but deeper patterns of social stratification that are reproduced in the digital sphere.

Intersectional dimensions

While the second-level digital divide framework provides the primary analytical lens, this article additionally draws on intersectional concepts to capture the specific way in which multiple social categories compound disadvantage for the women in this study (Crenshaw 1991; McCall 2005; Verloo 2013). Intersectionality examines the simultaneous operation of multiple social categories – class, ethnicity, gender, age, parental status – and their combined effects on individuals' life chances. Its analytical value lies not in assuming that intersecting categories always produce unique, irreducible outcomes, but in directing attention to how combinations of social conditions constrain possibilities in ways that individual factors may not fully predict (Hancock 2007).

For Roma women in Bulgaria, this means recognizing that educational disadvantage, care responsibilities, ethnic discrimination in the labour market, and gender norms around domestic roles each contribute to digital skill atrophy and stagnation – and that their combination creates barriers that are substantially harder to overcome than any individual factor considered alone. As Stoilova (2021) demonstrates in the Bulgarian context, intersectional analysis adds analytical precision to accounts of educational and social inequality by making visible the interaction effects that single-axis frameworks miss.

It is important to distinguish this approach from a strong claim that the observed digital inequalities are produced by an entirely new and irreducible intersection that cannot be explained by socio-economic stratification. The patterns identified in this study are consistent with, and indeed largely explained

by, the second-level digital divide model. The intersectional contribution is to show which axes of stratification are simultaneously operative and how they reinforce one another: ethnicity shapes labour market access and therefore digital skill development opportunities; gender and parental status shape time availability and care responsibilities that constrain training; and age intersects with all three to determine the stage of skill development at which motherhood intervenes.

Within this framework, it is important to maintain analytical distinctions between digital marginalization, labour exclusion, and social exclusion, even while recognizing their mutual reinforcement. Digital exclusion may deepen labour market disadvantage; labour precarity, in turn, limits the time, resources, and motivation for digital skill development. Recognizing these as distinct but interconnected dynamics is essential for designing effective analytical frameworks and targeted policy responses.

Methodology

This study employs a qualitative research design combining semi-structured in-depth interviews and a focus group discussion. The qualitative approach is justified by the exploratory nature of the research, aiming to capture subjective experiences, meanings, and strategies of young Roma mothers in relation to employment and digital practices.

Operationalization of digital skills

For the purposes of this study, digital skills are understood at three differentiated levels, drawing on the European DigComp framework (European Commission 2022b):

- Basic skills: use of a smartphone for messaging applications, online search, and social media;
- Intermediate skills: data entry, use of standardized administrative or professional software, completion of online forms, and document processing;
- Advanced skills: use of specialized professional or creative software, online work platforms, and digital tools requiring dedicated training.

This operationalization enables a differentiated analysis of participants' digital competences rather than treating digital skills as a single, undifferentiated category, and allows the study to examine specific trajectories of digital skill development, stagnation, or atrophy in the context of motherhood. This typology aligns with the second-level digital divide framework, which emphasizes differences in productive skill use rather than mere access.

Sampling and recruitment

The study is based on a small, non-representative sample (N=13), comprising one focus group (six participants) and seven in-depth interviews, of which three cases are presented in detail. Participants were recruited with the support of a local NGO (Hased Foundation) using purposive and snowball sampling.

Participants were selected on the basis of the following criteria: Roma ethnic background; age under 35; presence of at least one child; and residence in the Fakulteta neighbourhood. The three cases presented in detail were selected to illustrate meaningful variation across key dimensions: employment trajectory (working outside one's field of qualification; working within one's field; requalifying during maternity leave); digital skill trajectory (atrophy; stagnation; active development); and primary perceived axis of discrimination (age, ethnicity, gender). This selection logic is intended to maximize analytical diversity within the sample rather than to produce a representative cross-section.

To reduce network bias associated with snowball sampling, initial participants were selected to vary by education level and employment status, and recruitment was mediated by the NGO rather than solely through participant referral. Despite these measures, the sample remains embedded within a localized social network, which may limit the diversity of perspectives.

Data collection, coding, and analysis

All interviews and the focus group were audio-recorded with participants' consent and subsequently transcribed in full. The transcripts were subjected to thematic content analysis following a two-stage coding procedure. In the first stage, open coding was applied to identify recurring themes across the data corpus, including: employment decision-making after childbirth; digital practices and skill self-assessment; barriers to digital skill development; and perceived discrimination. In the second stage, focused coding was applied to identify patterns of variation and connection across these themes, guided by the theoretical framework outlined above.

Coded segments were reviewed for consistency across cases, and the three cases selected for detailed presentation were identified as analytically distinct on the key dimensions of interest. The coding process was carried out by the author, and the selection of illustrative citations reflects these analytical categories rather than a systematic frequency count. All names are pseudonyms and identifying details have been modified to ensure anonymity.

Group dynamics and social desirability

The focus group method introduces risks related to social desirability bias, conformity effects, and self-censorship on sensitive topics such as ethnicity and discrimination. To mitigate these: participants were selected so they did not know each other beforehand; the discussion was held in an environment chosen by participants; and moderation actively encouraged divergent opinions and personal narratives. Nevertheless, normative community expectations may have shaped expression of experience, and responses should be interpreted with appropriate caution.

Distinguishing experienced and anticipated discrimination

An important methodological caveat concerns the distinction between discrimination that participants have directly experienced and discrimination they anticipate or expect. Several of the interview narratives reflect the latter: participants describe imagined or feared scenarios of exclusion (e.g., "when they see I'm Roma, they probably wouldn't hire me") rather than concrete incidents. Both forms of evidence are analytically relevant – anticipated discrimination can function as a powerful behavioural constraint even in the absence of direct experience – but they require different interpretive treatment. Throughout the analysis, this distinction is maintained explicitly: direct experiences of discrimination are identified as such, while anticipated or inferred exclusion is discussed as a socially constructed expectation whose behavioural consequences are real even when the underlying discrimination may be uncertain.

Limitations

The study has several important limitations: a very small and non-representative, geographically localized sample; reliance on self-reported data; potential social desirability and conformity bias; and the influence of a specific local context (Fakulteta neighbourhood) that may not be typical of other Roma communities in Bulgaria or elsewhere. The three detailed cases, while selected for analytical diversity, cannot support broad generalizations. The findings should therefore be interpreted as analytical insights – illustrating mechanisms and dynamics – rather than as generalizable conclusions about young Roma mothers as a population.

Results

The research reveals that all interviewed Roma women with children face a shared dilemma following childbirth: they must reconcile employment with childcare in contexts where formal childcare provision is often insufficient and flexible employment arrangements are scarce. In all cases, the flexibility of working hours emerges as the primary criterion for employment choice – above salary, professional relevance, or career development. This section presents findings from three cases, analysing the experience of discrimination and the specific role of digital skills and practices in each woman's situation. Collectively, these cases exemplify the second-level digital divide: all three women have basic digital access (smartphones and internet), yet face structural barriers that prevent the development of productive, employment-relevant digital competences.

Case 1: Ralitsa

Ralitsa is 25 years old and has a two-year-old child. She is a trained pastry cook with a secondary education qualification from a Technical School for Public Catering. Before the birth of her son, she worked in her profession. For the past six months, she has been working as a part-time hygienist – a role

entirely outside her training – because its working hours allow her to collect her child from nursery and care for him when ill.

> *After the birth of my son, it doesn't matter what I work; the important thing is to be able to pick him up from daycare, take him to the doctor, and take care of him. To earn some money – because it's not possible without any* (Ralitsa, 25 years old, hygienist, secondary education).

The mismatch between Ralitsa's qualifications and her current role is experienced not only as a professional setback, but as a source of ongoing skill attrition. Her training included computer-based tools used in professional bakery and pastry contexts; her current role requires none of these. She is acutely aware of this deterioration.

> *I could do a better job, but there is no one to take care of my child. The job I can do requires a 12-hour schedule, and there's no option for fewer than 8 hours* (Ralitsa, 25 years old, hygienist, secondary education).

Digital practices and skills. Ralitsa's current digital engagement is at the basic level: she uses a smartphone for messaging and social media, but no longer accesses the professional software she encountered during her training. She is aware that this gap disadvantages her in the labour market, particularly when combined with other stigmatized attributes:

> *Who would hire me for a better job? When they see that I'm Roma with a small child who often gets sick, without higher education, with weak computer skills...* (Ralitsa, 25 years old, hygienist, secondary education).

Ralitsa's situation illustrates how downward occupational mobility, triggered by childcare responsibilities, creates a feedback loop of digital skill atrophy: lower-skilled jobs require fewer digital competences, which in turn reduces her capacity to re-enter higher-skilled employment. This is a clear example of the second-level digital divide operating through a specific labour market mechanism: it is not the absence of a smartphone or internet access that constrains Ralitsa, but the structural conditions (lack of affordable childcare, inflexible employment) that prevent her from maintaining and developing the professional digital competences she had begun to acquire.

The anticipated discrimination Ralitsa describes in the citation above reflects her perception of how multiple stigmatized characteristics – Roma ethnicity, young motherhood, low formal qualifications, weak digital skills – combine to reduce her attractiveness to employers. This is experienced and expressed as a gestalt; she does not describe specific discriminatory incidents but anticipates exclusion as a likely outcome. While this anticipation shapes her behaviour and self-assessment, it should be read as evidence of socially constructed expectations rather than necessarily of direct discriminatory acts.

She views the present situation as temporary – "until he starts first grade" – and intends to take computer and language courses before seeking better work.

This reflects both resilience and a realistic appraisal of the investment required to restore her competitive position.

Case 2: Mina

Mina is 27 years old and works as a nursing assistant at the municipal medical centre serving the Fakulteta neighbourhood. She has two children, aged 7 and 2, and has moved to part-time work following the birth of her second child.

> *Since I gave birth to my second child, I've been working part-time. The main income comes from my husband, and I have to both work and take care of the children while they are still young* (Mina, 27 years old, nursing assistant, secondary education).

Unlike Ralitsa, Mina continues to work within her professional field. However, she does so in a context defined by social insularity: the medical centre serves a Roma patient population and is staffed largely by Roma employees. While this provides acceptance and practical flexibility, it simultaneously reinforces a boundary between Mina's working world and the broader labour market.

Digital practices and skills. Mina works with a computer daily, but her digital engagement is at the intermediate level: she enters patient data and issues administrative documents using standardized health insurance software. She herself describes these activities as routine and assesses her overall computer skills as "elementary".

> *I work with a programme from the Health Insurance Fund. It's nothing special – I enter text, issue outpatient sheets, and medical notes* (Mina, 27 years old, nursing assistant, secondary education).

Mina is aware that her limited digital competences constrain her employment options outside the neighbourhood context, and she has concrete aspirations to develop them. She has considered taking a computer course to access better-paid work – inspired by a friend who found employment as a hospital receptionist after such training – but defers this investment until her children are older.

> *I have thought about looking for a better job, but I also need to take such a course – and for now, it's not possible. The children are still very young* (Mina, 27 years old, nursing assistant, secondary education).

Mina's case illustrates digital stagnation rather than atrophy: she maintains routine digital competence through daily use, but neither develops it nor loses it. The primary mechanism here is the social boundedness of her employment context, which does not require or incentivize digital skill growth beyond the immediate task. Her anticipated perception of ethnic exclusion reinforces her attachment to a familiar environment:

In another hospital – if they see that I'm Roma, they probably wouldn't hire me as a nurse. Moreover, I have children, and I often have to be absent (Mina, 27 years old, nursing assistant, secondary education).

This, like Ralitsa's, reflects anticipated rather than directly experienced discrimination. Mina has not applied to work in other hospitals and therefore has not been rejected on ethnic grounds; she predicts, on the basis of general community knowledge and broader societal expectations, that she would be disadvantaged. This expectation – whether or not it accurately reflects the probability of actual discrimination – functions as a real barrier by reducing her motivation to seek employment outside the familiar neighbourhood context.

Case 3: Yana

Yana is 29 years old and currently on maternity leave following the birth of her first child. Before childbirth, she worked as a storekeeper in a neighbourhood shop. Rather than waiting passively for the maternity period to end, she is using this time to pursue digital requalification.

My situation has changed – I have a child, and I need a job I can do from home. That's why I signed up to take a computer and language course. I want to improve my qualifications, find a job from home, and be able to take care of my child (Yana, 29 years old, on maternity leave, secondary education).

Yana's approach represents a qualitatively different response to the childcare-employment dilemma compared to the other two profiles. Rather than accepting downward occupational mobility (Ralitsa) or continuing in a familiar but bounded environment (Mina), she is actively investing in digital skills during the leave period, with the explicit goal of accessing online employment – a home-office model that would allow her to combine income-generating work with full-time childcare.

Digital practices and skills. Yana's current competence is at the basic-to-intermediate level. She is working to expand it through formal training with a specific practical objective: to access online employment platforms and flexible remote work. Her motivation is shaped, paradoxically, by an awareness of anticipated discrimination:

When they see me – a Roma with a very young child – no one will want to hire me anywhere (Yana, 29 years old, on maternity leave, secondary education).

Yana's strategy illustrates how awareness of anticipated intersecting forms of disadvantage – being Roma, being a young mother – can function as a driver for digital skill investment: precisely because she anticipates exclusion in conventional face-to-face employment, she targets digital and online forms of work that partially bypass the discrimination occurring at the point of hiring. This is again anticipated rather than directly experienced discrimination; Yana's account does not describe specific rejections but constructs a probable trajectory based on perceived social realities.

Digital skills and digital practices

Across the three cases, a consistent pattern emerges regarding the relationship between childcare responsibilities, employment trajectories, and digital skill development. In all three cases, the transition to motherhood disrupts a fragile trajectory of digital competence development through distinct mechanisms:

Ralitsa experiences skill atrophy: the professional digital knowledge acquired during her training is not maintained in her current role, and the absence of active investment causes her digital competence level to deteriorate over time.

Mina is digitally stagnant: she uses computers in her work, but at a basic level that does not develop over time and does not expand her employability beyond her current setting.

Yana is actively investing in digital skills during maternity leave – but this investment is itself a response to the anticipation of ethnic and gender-based exclusion in conventional employment.

These three trajectories collectively exemplify the second-level digital divide: the barriers are not primarily about physical access to devices or the internet (all three have some form of digital access), but about the structural conditions that prevent meaningful, skill-building digital engagement. The barriers are socio-economic – insufficient childcare, inflexible labour markets, ethnic and gender discrimination – and these structural constraints shape both the motivation and opportunity for digital skill development.

This pattern is consistent with the models proposed by Hargittai (2002), Van Dijk (2005), and van Deursen and van Dijk (2014): educational background, socio-economic position, and labour market participation are the primary drivers of productive digital skill development. The women in this study have low educational attainment, are employed in low-skilled roles, and are structurally constrained by care responsibilities – exactly the profile that the second-level digital divide literature identifies as associated with limited productive digital engagement.

What the intersectional lens adds is specificity: the combination of Roma ethnicity, female gender, young parental status, and secondary education creates a profile of anticipated discrimination that operates as an additional barrier to labour market mobility and therefore to opportunities for digital skill development. Yana's case further shows that these anticipated constraints can, under certain conditions, function as motivating factors: awareness of likely exclusion in conventional employment channels prompts investment in digital skills as an alternative route to the labour market.

It is important to note that digital marginalization operates through mechanisms that are distinct from, though interconnected with, labour exclusion and social marginalization. Labour exclusion reduces exposure to advanced digital skills; ethnic discrimination limits access to higher-skilled employment where digital competences would be developed and maintained; and limited digital skills in turn reduce competitiveness in the labour market. This mutually reinforcing dynamic cannot be addressed by targeting any single dimension in isolation.

Experienced and anticipated discrimination

The empirical material reveals an important distinction between experienced discrimination and anticipated discrimination. Although discrimination constitutes a recurring theme in participants' narratives, direct accounts of discriminatory treatment are relatively limited. More commonly, respondents describe expectations that they will encounter unfavourable treatment because of their ethnic background, motherhood status, age, or educational profile.

This distinction is analytically significant. Experienced discrimination refers to situations in which respondents report concrete incidents of unequal treatment, exclusion, or disadvantage. Anticipated discrimination, by contrast, refers to expectations that discrimination is likely to occur in future interactions. While both dimensions influence behaviour, they operate through different mechanisms and should not be analytically conflated.

The cases presented in this study illustrate the predominance of anticipated discrimination. Ralitsa's belief that employers would be reluctant to hire a Roma woman with a young child reflects an expectation of disadvantage rather than a documented discriminatory event. Similarly, Mina's concerns about employment opportunities outside the neighbourhood and Yana's expectations regarding future recruitment processes indicate perceptions of likely exclusion rather than direct experiences of discriminatory treatment.

At the same time, anticipated discrimination should not be dismissed as merely subjective. Expectations are socially produced through previous observations, shared community experiences, and broader public discourses regarding ethnicity, gender, and motherhood. Such expectations influence decisions concerning education, employment, and digital skill development. In this sense, anticipated discrimination functions as a socially consequential mechanism that shapes life trajectories even when direct discriminatory acts are absent or difficult to document.

The findings therefore suggest that both experienced and anticipated discrimination contribute to processes of labour-market and digital exclusion. However, maintaining a clear analytical distinction between these dimensions increases methodological precision and allows for a more nuanced interpretation of respondents' narratives.

Conclusion

This study has examined digital inequalities among young Roma mothers in Bulgaria through the lens of the second-level digital divide, drawing additionally on intersectional concepts to illuminate the specific ways in which gender, ethnicity, age, and parental status compound structural barriers. The transition to motherhood functions as a critical juncture at which pre-existing vulnerabilities are intensified: childcare responsibilities constrain employment options, reduce professional skill development, and limit digital engagement in a self-reinforcing cycle.

The three cases analysed illustrate distinct but analytically connected pathways. Ralitsa experiences downward occupational mobility accompanied by

active digital skill atrophy – a direct consequence of being forced into lower-skilled employment by care constraints that offer no incentive or opportunity for digital skill maintenance. Mina maintains stable employment in a familiar, bounded context in which digital skills remain at a basic level – digital stagnation produced by social insularity rather than exclusion. Yana represents a more agentic response, investing in digital requalification during maternity leave – a strategy shaped, paradoxically, by her anticipation of ethnic and gender-based discrimination in conventional employment.

Together, these cases confirm the applicability of the second-level digital divide framework to this population: the relevant inequality is not primarily one of physical access to devices or connectivity, but of the structural conditions that enable or prevent productive, employment-relevant digital skill development. All three women have basic digital access; none has the structural conditions – time, employment incentives, affordable childcare – that would enable advancement to intermediate or advanced digital competence.

The intersectional contribution of the analysis lies in identifying the specific combination of factors that produces this outcome: educational disadvantage shapes the starting level of digital competence; care responsibilities create the temporal and motivational constraints that prevent skill development; ethnic discrimination in the labour market limits the employment contexts in which higher digital skills would be valued and developed; and gender norms reinforce the concentration of care responsibilities on mothers. No single axis fully accounts for the observed digital skill trajectories; their combination does.

A methodological contribution of the study is its systematic attention to the distinction between experienced and anticipated discrimination. The narratives analysed show that anticipated exclusion – socially constructed expectations about the treatment one is likely to receive as a Roma, a woman, and a mother – shapes labour market behaviour and digital investment strategies in ways that are analytically significant, even when the underlying discrimination has not been directly encountered. This distinction is relevant for research design and should be maintained in future studies.

The study's limitations – a small, non-representative, and geographically localized sample; self-reported data; and a specific socio-spatial context – preclude generalization and point to clear directions for future research. Longitudinal studies tracking digital skill trajectories over the childbearing period would allow for a dynamic analysis of how digital competences evolve in relation to employment decisions. Comparative research across different urban and rural Roma communities in Bulgaria and the region would test the generalizability of the patterns identified here. Quantitative research on the relationship between childcare availability, employment flexibility, and digital skill development among Roma women would complement the qualitative insights of this study. Future work should also engage with recent literature on digital inclusion among Roma communities (Munté-Pascual et al. 2025; FRA 2024; Miranda et al. 2025), and with comparative typologies of digital inclusion across EU member states (Gomes, Dias 2025; Cruz-Jesus, Oliveira, Bação 2012).

Reflexivity

The interpretation of respondents' narratives is shaped by the research design, the context of data collection, and broader societal discourses about Roma communities. Participants' narratives may reflect both lived experiences and internalized expectations of exclusion – a dual dimension that should be borne in mind when interpreting accounts of marginalization. The analytical distinction between experienced and anticipated discrimination introduced in this article is one response to this interpretive challenge. Recognizing this dual dimension is essential for a nuanced understanding of the findings.

Policy implications

To support the integration of young Roma mothers into the digital economy and higher-skilled employment, targeted policy responses are needed across several interconnected dimensions. Flexible working arrangements – including part-time contracts, job-sharing, and remote work options – can reduce the structural conflict between employment and childcare. Expanded and affordable childcare provision is a prerequisite for enabling Roma mothers to participate in training programmes and access higher-skilled employment. Digital literacy programmes designed for this group should be differentiated by skill level, addressing the progression from basic to intermediate and advanced competence, and linked concretely to employment opportunities. Partnerships between state institutions, NGOs, and employers can provide access to online employment platforms and support the development of home-based work options. Anti-discrimination measures in employment are essential to ensure that investment in education and digital skills translates into actual improvements in labour market outcomes. Without this structural dimension, digital training programmes risk producing competences that cannot be realized in the labour market due to persistent ethnic and gender discrimination.

This article examined digital inequalities among young Roma mothers in Bulgaria through an intersectional analytical framework combining insights from digital inequality research and intersectionality theory. The findings demonstrate that digital inequalities cannot be adequately understood through access-based approaches alone. All participants possessed access to digital technologies and internet connectivity, yet substantial differences emerged regarding opportunities for maintaining, developing, and converting digital skills into social and economic advantages.

The empirical analysis identified three distinct trajectories of digital engagement: digital skill atrophy, digital stagnation, and digital investment. These trajectories are shaped by the interaction of motherhood, ethnicity, age, educational background, and labour-market position. Childcare responsibilities reduce opportunities for training and professional development; labour-market constraints limit access to occupations where digital skills can be expanded; and perceptions of ethnic and gender-based disadvantage influence employment strategies and aspirations.

The study contributes to the literature in several ways. First, it demonstrates the importance of distinguishing digital inequality from labour-market marginalization and broader social exclusion while recognizing their mutual reinforcement. Second, it provides empirical evidence that digital inequalities among young Roma mothers are expressed primarily through differences in skills, uses, and outcomes rather than through access itself. Third, it illustrates the analytical value of intersectionality for understanding why individuals occupying similar socio-economic positions may nevertheless experience different forms of digital inclusion and exclusion.

The findings support recent European research emphasizing that digital inclusion depends not only on technological infrastructure but also on educational opportunities, institutional support, social networks, and the ability to accumulate digital capital. From this perspective, digital inequality should be understood as a socially embedded process that both reflects and reproduces broader patterns of disadvantage.

The study has several limitations, including a small and geographically localized sample and reliance on self-reported data. Future research should examine digital skill trajectories longitudinally, compare different Roma communities, and investigate the relationship between childcare provision, employment flexibility, and digital capital accumulation. Such research would contribute to a deeper understanding of how digital inequalities are produced and how they might be effectively addressed through public policy and targeted interventions.

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