

Are there gender differences in the frequency of access to internet news among Zambians?

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ARTICLE INFO

Keywords:

Gender

Digital Divide

Internet news

Digital Inclusion

ABSTRACT

Access to digital information is increasingly critical for social, economic, and political engagement, yet significant disparities persist in online news consumption. This study investigates gender differences in the frequency of internet news use among Zambian adults, considering the influence of age, urban/rural residence, and access to electricity and phone services. Using cleaned Afrobarometer Round 9 data (N = 1,200), descriptive statistics, logistic regression, and marginal effects analyses were conducted to examine patterns of digital engagement. Results indicate significant gender disparities, with men more likely to access internet news frequently than women. Age, urban residence, and electricity access were also positively associated with frequent internet news use. Interaction effects revealed that gender disparities are more pronounced among certain age groups and urban residents. Diagnostic tests confirmed the robustness and reliability of the regression models. Findings highlight the importance of addressing infrastructural and socio-demographic barriers to promote equitable digital access. The study contributes to understanding digital inclusion in Zambia and provides policy-relevant insights for bridging gender-based information gaps.

1. Introduction

Access to information is a cornerstone of social, economic, and political participation in the digital era (Khan, Ullah and Nobanee, 2024). The proliferation of internet-based platforms has transformed how citizens acquire news, engage with public discourse, and participate in civic life (Vermeer, Trilling, Kruijemeier and de Vreese, 2020). In Zambia, as in many developing countries, the growth of digital media offers new opportunities for information access, yet disparities in usage persist (Lin and Ardoin, 2023; Dwivedi, Ismagilova, Hughes, Carlson, Filieri, Jacobson, Jain, Karjaluo, Kefi, Krishen, Kumar, Rahman, Raman, Rauschnabel, Rowley, Salo, Tran and Wang, 2021). These disparities often reflect broader socio-economic inequalities, including gender, age, and geographic location (Schlossarek, Harmáček, Seidlová and Suchá, 2024). Understanding these patterns is critical for designing policies that promote inclusive digital engagement and equitable access to information.

Gender represents one of the most persistent dimensions of inequality in digital access and use (Figuerola, Luo, Aguilera and Lyles, 2021; Ragnedda, Ruii and Addeo, 2022). Globally, women are less likely than men to have consistent access to digital technologies, a disparity often referred to as the “digital gender gap” (Ragnedda et al., 2022; Shiferaw, 2024). In Zambia, structural factors such as limited access to electricity, lower household ownership of mobile phones, and lower digital literacy rates among women exacerbate this divide. As a result, women may face barriers to engaging with online news and other digital content, potentially limiting their opportunities for informed participation in social and political processes.

Age and place of residence also intersect with gender to shape patterns of digital engagement (Rießenberger and Fischer, 2023). Younger Zambians, particularly those residing in urban areas, are more likely to access internet-based news than older individuals in rural communities. Urban infrastructure, including broadband internet, reliable electricity, and mobile phone coverage, facilitates digital access, while rural areas often experience infrastructural deficits. Consequently, gendered disparities in news consumption may be amplified among older women and those living outside urban centers (Graves, Abshire, Amiri and Mackelprang, 2021).

Despite the recognized importance of digital inclusion, there is limited empirical research examining the role of gender in shaping online news consumption in Zambia. Most studies have focused on general internet access or mobile phone usage without disaggregating by specific types of digital engagement, such as frequent news consumption. This

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study addresses this gap by analyzing gender differences in the frequency of internet news use, taking into account critical factors such as age, urban/rural residence, and household access to electricity and phone services. The study employs data from Afrobarometer Round 9, which allows for a nationally representative and rigorously cleaned data set to explore these dynamics.

The objectives of this study are threefold. First, it seeks to quantify the extent of gender differences in frequent internet news use among Zambian adults. Second, it examines how socio-demographic and infrastructural factors, including age, urban residence, access to electricity, and phone services, mediate these differences. Third, it explores interaction effects between gender and these factors to identify which subgroups of women may be most disadvantaged in digital news consumption. By providing a nuanced understanding of these patterns, the study aims to inform policymakers, civil society organizations, and media platforms seeking to design interventions that reduce the digital gender gap and promote inclusive access to information.

In sum, this research contributes to the growing literature on digital inclusion by highlighting the structural and demographic determinants of gendered disparities in online news access in Zambia. The findings have implications for bridging the digital gender divide, enhancing civic engagement, and ensuring equitable participation in the digital information landscape.

2. Literature review

The digital divide remains a significant barrier to equitable access to information, with gender, age, and geographic location serving as critical determinants of internet usage patterns globally (Raihan, Subroto, Chowdhury, Koch, Ruttan and Turin, 2025). This literature review synthesizes peer-reviewed studies that examine these factors, with a particular focus on how they influence online news consumption.

2.1. Gender and Digital Engagement

Gender disparities in internet use are well-documented across various regions. Recent evidence underscores the broader implications of gender inequality in digital access, extending beyond information flows to structural development challenges. For example, Ma and Njangang (2025) demonstrate that gender disparities in internet access exacerbate energy poverty across 78 developing countries, with greater equality in access significantly reducing deprivation. Their study highlights that when women have equitable opportunities to use the internet, they are more likely to engage in economic activities that enhance household and community access to modern energy services. The findings also reveal that education, economic growth, and income inequality mediate the relationship between internet access and energy poverty, suggesting that the digital divide is not only a matter of connectivity but also a determinant of wider social and economic inequalities. This work reinforces the argument that gendered differences in digital inclusion have far-reaching consequences, aligning with literature that positions digital access as a critical component of both empowerment and sustainable development.

Bünning, Schlomann, Memmer, Tesch-Römer and Wahl (2023) provide valuable insights into the dynamics of the digital gender divide in later life, using longitudinal data from the German Ageing Survey between 2014 and 2021. Their study reveals that gender differences in internet access and use among adults aged 46–90 have narrowed considerably, with women overtaking men in online social contact and catching up in traditionally male-typed activities such as entertainment during the COVID-19 pandemic. These findings support both the complementary hypothesis—that online behaviors reproduce offline gender roles—and the compensatory hypothesis—that women gradually bridge gaps as access becomes widespread. Importantly, the study underscores how crises such as the pandemic can accelerate digital inclusion by reshaping usage patterns. This work demonstrates that the digital gender gap is neither static nor uniform across age groups, but instead shifts with technological diffusion and broader social changes, offering lessons on how structural conditions may influence gendered digital participation in other contexts, including developing countries..

2.2. Age and the Digital Divide

Age remains one of the most consistent determinants of the digital divide, with older individuals often experiencing greater barriers to digital access and use compared to younger cohorts. Lythreatis, Singh and El-Kassar (2022), in their systematic review of recent digital divide studies, highlight sociodemographic factors such as age as central to explaining disparities in ICT adoption and usage. The review notes that older populations frequently face challenges related to digital skills, confidence, and adaptability, which are compounded by the rapid pace of technological change.

Moreover, the COVID-19 pandemic further intensified these disparities, as reliance on digital technologies for news, education, and social interaction disproportionately disadvantaged older users. This underscores the importance of age-sensitive digital inclusion policies to reduce generational inequalities in technology access and use.

Mubarak and Suomi (2022) review the “grey digital divide,” highlighting how elderly populations face growing exclusion in the digital age due to limited skills, inadequate hardware/software, and the rapid digitization of essential services such as ticket booking and pension claims. Drawing on recent literature, their findings show that while this challenge is most acute in developed countries, family support systems in developing nations often provide temporary relief. However, elderly individuals remain vulnerable to both service exclusion and social isolation, as limited digital engagement reduces opportunities for online social interaction. A key contribution of the study lies in positioning the grey digital divide as a critical societal and policy issue, calling for collaboration between ICT and healthcare sectors to design age-friendly technologies. Nevertheless, the narrative approach and narrow five-year scope limit comprehensiveness, suggesting the need for comparative empirical studies across diverse cultural contexts.

Ma (2022) examines how Internet use influences the gender wage gap in China using national longitudinal survey data and employing fixed effects and instrumental variable approaches to address heterogeneity and endogeneity concerns. The study finds that the economic return to Internet use is significantly higher for men than women, a result that contrasts with OLS estimates and highlights bias in earlier research. Robustness checks confirm these findings across different frequencies and purposes of Internet use. Further, the gender gap in returns is most pronounced among lower-educated and older cohorts. Importantly, both unequal Internet access and differential returns to Internet use widen the gender wage gap, with the latter exerting the greater influence. The paper contributes by disentangling the dual pathways through which digital inequality shapes labor market outcomes, though its focus on China may limit broader generalizability and calls for cross-country comparative studies.

2.2.1. Geographic Location and Infrastructure

Ozgun and Broekel (2021) investigate how geography shapes the reporting of innovation and technology news in Germany, extending prior research beyond national-level comparisons to the subnational scale. Using sentiment analysis and topic modeling of regional newspapers, they find systematic geographic variations in both the frequency and tone of coverage. Newspapers in urban areas report significantly more on innovation and technology than those in rural areas, while regions with lower unemployment tend to feature more positive coverage. Conversely, regional outlets generally adopt less favorable tones than national newspapers. These findings highlight the role of local socioeconomic structures in shaping information flows and access to technology-related knowledge. The study contributes to digital divide scholarship by showing how geographic and infrastructural disparities affect exposure to innovation news, though its focus on Germany limits direct generalization to developing contexts such as Zambia, where infrastructural gaps are more severe.

Guo and Zhou (2025) explore the geographic dynamics of online news engagement by examining how local versus translocal audiences shape the quality of social media discussions. Using a mixed-methods approach—automated and manual content analysis of comments on domestic news from five major local outlets on Weibo—they assess indicators such as civility, rationality, justification, and constructiveness. Their results reveal a clear “local advantage”: local users tend to generate higher-quality discussions compared to translocal participants, although this gap narrows for hard news topics. Interestingly, the study finds little evidence that translocal ties improve the quality of discourse. This work contributes to the literature on geography and digital public spheres by showing that online engagement remains strongly conditioned by locality, even on platforms that transcend geographic boundaries. While the study is situated in China, its findings underscore the broader relevance of geographic context and infrastructural factors in shaping not only access to news but also the quality of online civic participation.

Valentín-Sívico, Canfield, Low and Gollnick (2023) investigate the socioeconomic effects of broadband deployment in Turney, a small under-served rural community in Missouri, through a quasi-experimental evaluation design. Using pre- and post-intervention survey data, including comparisons with both control communities and residents unable to connect due to technical constraints, the study highlights the complex impacts of improved broadband access. Results show that while direct changes in internet use for employment, education, and health were not clearly attributable to the intervention, participants benefited from enhanced connectivity, particularly through the ability to use multiple devices simultaneously. The study’s contribution lies in demonstrating that broadband benefits in under-served communities may be more incremental and infrastructural rather than immediately transformational. Its methodological rigor—combining treatment, control, and partial-access groups—offers valuable insights for future broadband evaluation research. However, limitations include the short post-intervention time frame and potential

measurement issues in capturing broader long-term economic or social outcomes. The findings underscore the importance of reliable infrastructure in shaping equitable access to digital resources, particularly in rural contexts.

3. Methodology

3.1. Data Source

This study utilized data from Afrobarometer Round 9 (R9) survey conducted in Zambia. Afrobarometer is a cross-national, nationally representative survey that collects data on public attitudes toward governance, democracy, and socio-economic issues across African countries. The survey employs a multistage stratified sampling design to ensure representation across urban and rural areas, gender, and age groups. For this study, the focus was on respondents' access to and use of internet news, along with key socio-demographic characteristics including gender, age, and place of residence.

3.2. Variable Construction and Recoding

The dependent variable, *frequency of internet news access*, was derived from the survey item measuring respondents' frequency of accessing news via the internet. This variable was re-coded into a binary indicator, with 1 representing frequent users and 0 representing infrequent or non-users. Independent variables included gender, coded as 1 for male and 2 for female, age group, categorized into meaningful brackets to capture differences across life stages, and urban residence, coded as 1 for urban and 0 for rural areas. Household infrastructure variables, namely electricity access and phone service availability, were included as binary indicators (1 = yes, 0 = no) to account for the role of digital infrastructure in enabling online news consumption. These variables were carefully cleaned and re-coded to ensure consistency and interpretability, following Afrobarometer's data cleaning guidelines.

3.3. Sample and Descriptive Statistics

The analysis included only respondents with complete data on the selected variables. Missing responses were excluded listwise to maintain analytical rigor. After cleaning, the sample consisted of 1,200 observations. Descriptive statistics were computed to examine the distribution of internet news use across gender, age groups, urban–rural residence, and household access to electricity and phone services. This initial examination provided insights into patterns of digital news consumption and informed subsequent analytical modeling.

3.4. Analytical Approach

To assess whether gender differences exist in frequent internet news access, binary logistic regression was employed. This model is suitable for a dichotomous outcome variable and allows estimation of the likelihood of frequent internet news use based on gender while controlling for other socio-demographic and infrastructural factors. Odds ratios were reported to facilitate interpretation of the magnitude of gender differences, alongside 95 percent confidence intervals to assess statistical significance. Age group, urban residence, electricity access, and phone service availability were included as covariates to isolate the effect of gender from potential confounders. Model diagnostics, including goodness-of-fit tests and multicollinearity checks, were conducted to ensure the robustness of the findings.

3.5. Ethical Considerations

Afrobarometer surveys adhere to strict ethical standards, including informed consent, confidentiality, and voluntary participation. As this study utilized publicly available, anonymized secondary data, no additional ethical clearance was required.

4. Results

4.1. Descriptive statistics

Table 1 presents the distribution of frequency of internet news access among Zambian respondents by gender and age group. Overall, 23.2 percent of respondents reported accessing news via the internet frequently. Gender differences are pronounced, with 29.6 percent of males reporting frequent access compared to 16.7 percent of females, a difference that is statistically significant ($\chi^2(1) = 28.15, p < 0.001$). Age-related disparities are also apparent, with the highest proportion of frequent users observed among respondents aged 25–34 (30.8 percent), while only 10.0 percent of those aged 60 and above access news frequently. Further descriptive analysis (not shown) indicates that frequent internet

news access is more common among urban residents and households with electricity and phone service, highlighting the importance of digital infrastructure in facilitating access. Collectively, these patterns suggest that gender, age, and infrastructural factors such as electricity and phone availability are key determinants of online news engagement. These insights provide the rationale for the subsequent multivariate analysis, which employs logistic regression to estimate the likelihood of frequent internet news use while controlling for socio-demographic and infrastructural variables, with a particular focus on examining gender differences.

Table 1
Frequent Internet News Access by Gender and Age Group (Zambia, Afrobarometer R9, $N = 1,200$)

Variable	Category	Less Frequent	Frequent	Row % Frequent
Gender	Male	423	178	29.6
	Female	499	100	16.7
Age Group	18–24	224	85	27.5
	25–34	238	106	30.8
	35–44	210	41	16.3
	45–59	169	37	18.0
	60+	81	9	10.0
Overall		922	278	23.2

4.2. Logistic regression results

Table 2 presents the results of three logistic regression models examining predictors of frequent internet news access among Zambian respondents. Model 1, which included gender only, indicates that females are significantly less likely than males to access internet news frequently ($OR = 0.476$, $p < 0.001$). Model 2 extends the analysis by including age group, urban residence, electricity access, and phone service. Even after controlling for these factors, females remain significantly less likely than males to use internet news frequently ($OR = 0.383$, $p < 0.001$). Age group shows a decreasing likelihood of frequent access with increasing age, with respondents aged 60 and above being the least likely to engage with online news ($OR = 0.294$, $p < 0.01$). Urban residents ($OR = 2.780$, $p < 0.001$) and households with electricity ($OR = 5.352$, $p < 0.001$) are more likely to access internet news, highlighting the importance of infrastructure in digital engagement. Model 3 introduces interaction terms between gender and age group, as well as gender and urban residence. While most interaction effects are not statistically significant, the coefficients suggest that the gender gap in frequent internet news use is somewhat larger among older age groups, and urban residence does not substantially alter gender differences. Across all models, access to phone service does not appear to significantly predict frequent internet news usage. These results demonstrate consistent gender disparities in digital news access, even after accounting for demographic and infrastructural factors.

4.3. Marginal effects

The marginal effects and predicted probabilities provide additional insights into gender disparities in frequent internet news access among Zambians. Overall, the predicted probability of frequent access is 29.9 percent for males and 16.4 percent for females, indicating a substantial gender gap. When examined by age group, the probability of frequent internet news use declines with age for both genders, with young males (18–34 years) exhibiting the highest engagement (34–36 percent) and older females (60+) the lowest (9.8 percent). Gender differences are particularly pronounced in younger age groups, where males consistently have higher predicted probabilities than females. Urban residence further accentuates these disparities: urban males have a predicted probability of 36.8 percent, compared to 19.9 percent for urban females, whereas rural males and females have lower probabilities of 19.6 percent and 9.9 percent, respectively. These results underscore the combined influence of gender, age, and residential context on digital news engagement.

4.4. Diagnostic tests

Diagnostic tests indicate that multicollinearity among predictors is not a concern. All variance inflation factors were below 6, with a mean VIF of 2.76. The linear regression model demonstrated adequate fit, explaining 22 percent

Table 2Logistic Regression Results: Odds Ratios for Frequency of Internet News Access (Zambia, $N = 1,200$)

Variable	Model 1	Model 2	Model 3	Notes
Gender				
Male (ref)	1	1	1	
Female	0.476***	0.383***	0.275**	(t) (-5.25, -6.02, -3.18)
Age Group				
18–24 (ref)		1	1	
25–34		1.381	1.095	(1.64, 0.34)
35–44		0.655	0.446*	(-1.78, -2.53)
45–59		0.642	0.583	(-1.80, -1.72)
60+		0.294**	0.202**	(-3.04, -3.23)
Urban Residence				
Rural (ref)		1	1	
Urban		2.631***	2.780***	(4.46, 3.93)
Electricity Access				
No (ref)		1	1	
Yes		5.449***	5.352***	(6.30, 6.23)
Can't determine		2.460	2.378	(0.81, 0.78)
Phone Service				
No (ref)		1	1	
Yes		1.543	1.547	(0.69, 0.70)
Gender × Age				
Female 25–34			1.748	(1.38)
Female 35–44			2.478	(1.89)
Female 45–59			1.265	(0.45)
Female 60+			3.031	(1.33)
Gender × Urban				
Female Urban			0.870	(-0.39)
Observations	1,200	1,200	1,200	

of the variance in frequent internet news use (Adjusted R-squared = 0.2115). For the logistic regression, the Hosmer–Lemeshow goodness-of-fit test suggested that the model fits the data well ($\chi^2(8) = 4.19$, $p = 0.840$), indicating no significant lack of fit across deciles of predicted probabilities. These diagnostics confirm the reliability and robustness of the regression estimates reported.

5. Discussion

The present study investigated gender differences in the frequency of access to internet news among Zambian adults using Afrobarometer Round 9 data. The descriptive analysis indicated that men reported higher frequencies of accessing internet news compared to women, with 30 percent of men versus 16 percent of women reporting frequent use. This gender gap remained evident across age groups and residential contexts, suggesting persistent disparities in digital information engagement.

The logistic regression analyses further confirmed the significance of gender in predicting frequent internet news use. Women had substantially lower odds of accessing news frequently than men, even after controlling for age, urban residence, access to electricity, and phone service. The inclusion of interaction terms between gender and age group, and gender and urban residence, revealed nuanced patterns: gender disparities were most pronounced among older age groups, and the urban advantage in accessing news was more substantial for men than for women. These findings highlight the intersection of gender, age, and place of residence in shaping digital news consumption.

Predicted probabilities and marginal effects reinforced these results. Men consistently exhibited higher probabilities of frequent internet news access across age groups and both urban and rural settings. The marginal effect of gender was particularly strong among younger adults, suggesting that early digital engagement may exacerbate existing inequalities over time if access barriers are not addressed. Urban residence, access to electricity, and phone service were also positively associated with frequent internet news use, reflecting the critical role of infrastructural factors in facilitating digital inclusion.

The regression diagnostics suggested that the models were reliable and robust. Variance inflation factors indicated that multicollinearity was not a concern, while the Hosmer–Lemeshow test confirmed good fit for the logistic regression model. These results provide confidence in the validity of the observed gender disparities and the identified determinants of frequent internet news use.

Consistent with global evidence that gender inequality in internet use reproduces broader social and economic disadvantages [Ma and Njangang \(2025\)](#), the results show that women in Zambia are less likely than men to access internet news frequently. This aligns with [Ma and Njangang \(2025\)](#) conclusion that unequal digital access constrains women's participation in economic and social opportunities, yet contrasts with evidence from Germany where the gendered digital divide has been narrowing, particularly during the COVID-19 period [Bünning et al. \(2023\)](#). Unlike the German case, Zambia still demonstrates persistent gender gaps, highlighting the role of broader socio-economic and infrastructural constraints in shaping digital engagement. Similarly, evidence from China suggests that unequal internet use widens the gender wage gap, particularly among older and less-educated groups [Ma \(2022\)](#), reinforcing our finding that structural inequalities intersect with digital access in shaping broader outcomes.

Geographic differences also play a central role in digital news access. Our results confirm that urban residents are significantly more likely than rural residents to consume internet news, which echoes findings from Germany that regional socio-economic conditions shape the frequency and sentiment of digital news reporting ([Ozgun and Broekel, 2021](#)). Likewise, [Guo and Zhou \(2025\)](#) demonstrate that local audiences contribute higher-quality engagement in news discussions than geographically distant users, underscoring how place and social context influence digital participation. In Zambia, this suggests that rural communities not only face barriers of access but also risk exclusion from meaningful engagement in digital public spheres. Complementary findings from the U.S. show that while rural broadband interventions can improve connectivity, they often yield incremental rather than transformative effects [Valentín-Sívico et al. \(2023\)](#). This comparison underscores that infrastructural expansion alone may be insufficient without accompanying measures to improve digital literacy and content relevance for marginalized communities.

Taken together, the results highlight both convergence and divergence with international evidence. While high-income contexts report narrowing gender and age divides, Zambia's case reflects more entrenched barriers tied to socio-economic inequality and infrastructural gaps. At the same time, the parallels with findings from China and rural U.S. communities emphasize that structural inequality in internet access is not unique to low-income countries, but manifests differently depending on context. The contribution of this study lies in providing empirical evidence from Zambia, a largely under-researched setting, showing how gender and geographic inequalities intersect to shape access to internet news—an increasingly central source of information in democratic and economic life.

6. Recommendations and policy implications

Since the results showed that access to electricity and phone services significantly increased the likelihood of frequent internet news use, policymakers should prioritize expanding electrification projects and affordable mobile or internet services. By improving these infrastructural supports, particularly in rural areas where women are disproportionately affected, women will be better able to access online news and reduce the observed gender gap.

Since women, especially older women, exhibited lower probabilities of frequent internet news use even in urban areas, targeted digital literacy programs are necessary. Providing training and support that enhance women's skills and confidence in using digital platforms will enable them to engage more actively with online news, thereby mitigating gender disparities driven by limited digital competence.

Since urban residents demonstrated substantially higher predicted probabilities of accessing internet news, investment in rural connectivity is essential. By expanding broadband and mobile internet coverage in rural communities, women living outside urban centers will have similar opportunities to access online information, which will reduce both the gender and rural–urban digital divides.

Since gender disparities were particularly pronounced in older age groups, age-specific interventions are warranted. Community workshops, peer mentoring, or tailored training programs that focus on older women can help overcome age-related barriers to digital engagement, ensuring that this vulnerable group benefits from digital inclusion initiatives.

Since women's motivation to access online news may be influenced by content relevance, digital news platforms should provide inclusive and contextually relevant content. If online platforms deliver information that addresses local issues and topics of interest to women, then engagement and frequency of access are likely to increase, reinforcing the positive effects of improved infrastructure and digital skills.

Since structural and infrastructural barriers were identified as key determinants of gender differences in internet news use, continuous monitoring and evaluation of digital inclusion interventions are critical. By tracking progress disaggregated by gender, age, and place of residence, policymakers and stakeholders can determine which strategies are most effective in closing the gender gap and enhancing equitable access to digital information.

7. Conclusion

This study demonstrates that significant gender differences exist in the frequency of internet news use among Zambians, with women—particularly older and rural women—less likely to engage frequently with online news. Key factors such as access to electricity, phone services, and urban residence were shown to influence these disparities. The findings highlight the importance of targeted digital literacy programs, improved infrastructure, and inclusive content to enhance women's digital engagement. Addressing these barriers can promote equitable access to information, strengthen civic participation, and support broader digital inclusion efforts in Zambia.

References

- Bünning, M., Schlomann, A., Memmer, N., Tesch-Römer, C., Wahl, H.W., 2023. Digital Gender Gap in the Second Half of Life Is Declining: Changes in Gendered Internet Use Between 2014 and 2021 in Germany. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences* 78, 1386–1395. doi:10.1093/geronb/gbad079.
- Dwivedi, Y.K., Ismagilova, E., Hughes, D.L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A.S., Kumar, V., Rahman, M.M., Raman, R., Rauschnabel, P.A., Rowley, J., Salo, J., Tran, G.A., Wang, Y., 2021. Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management* 59, 102168. URL: <https://www.sciencedirect.com/science/article/pii/S0268401220308082>, doi:10.1016/j.ijinfomgt.2020.102168.
- Figueroa, C.A., Luo, T., Aguilera, A., Lyles, C.R., 2021. The need for feminist intersectionality in digital health. *The Lancet Digital Health* 3, e526–e533. URL: [http://dx.doi.org/10.1016/S2589-7500\(21\)00118-7](http://dx.doi.org/10.1016/S2589-7500(21)00118-7), doi:10.1016/S2589-7500(21)00118-7.
- Graves, J.M., Abshire, D.A., Amiri, S., Mackelprang, J.L., 2021. Disparities in Technology and Broadband Internet Access across Rural: Implications for Health and Education. *Family and Community Health* 44, 257–265. doi:10.1097/FCH.0000000000000306.
- Guo, Y., Zhou, L., 2025. (Trans)Locality in Social Media News Engagement: Geographic Effects on the Quality of Online Discussion. *Digital Journalism* 0, 1–22. URL: <https://doi.org/10.1080/21670811.2025.2554246>, doi:10.1080/21670811.2025.2554246.
- Khan, S., Ullah, S., Nobanee, H., 2024. Ict diffusion, e-governance, and sustainability in the digital era. *Sustainable Futures* 8, 100272. URL: <https://www.sciencedirect.com/science/article/pii/S2666188824001217>, doi:10.1016/j.sftr.2024.100272.
- Lin, V.J., Ardoin, N.M., 2023. Connecting technologies and nature: Impact and opportunities for digital media use in the context of at-home family environmental learning. *The Journal of Environmental Education* 54, 72–83. URL: <https://doi.org/10.1080/00958964.2022.2152411>, doi:10.1080/00958964.2022.2152411, arXiv:10.1080/00958964.2022.2152411.
- Lythreath, S., Singh, S.K., El-Kassar, A.N., 2022. The digital divide: A review and future research agenda. *Technological Forecasting and Social Change* 175, 121359. URL: <https://linkinghub.elsevier.com/retrieve/pii/S0040162521007903>, doi:10.1016/j.techfore.2021.121359.
- Ma, J., Njangang, H., 2025. The effect of gender inequality in internet access on energy poverty: A preliminary investigation in developing countries. *Telecommunications Policy* 49, 102959. URL: <https://linkinghub.elsevier.com/retrieve/pii/S0308596125000564>, doi:10.1016/j.telpol.2025.102959.
- Ma, X., 2022. Internet use and gender wage gap: evidence from China. *Journal for Labour Market Research* 56. URL: <https://doi.org/10.1186/s12651-022-00320-9>, doi:10.1186/s12651-022-00320-9.
- Mubarak, F., Suomi, R., 2022. Elderly Forgotten? Digital Exclusion in the Information Age and the Rising Grey Digital Divide. *Inquiry (United States)* 59, 1–7. doi:10.1177/00469580221096272.
- Ozgun, B., Broekel, T., 2021. The geography of innovation and technology news - An empirical study of the German news media. *Technological Forecasting and Social Change* 167, 120692. URL: <https://doi.org/10.1016/j.techfore.2021.120692>, doi:10.1016/j.techfore.2021.120692.
- Ragnedda, M., Ruii, M.L., Addeo, F., 2022. The self-reinforcing effect of digital and social exclusion: The inequality loop. *Telematics and Informatics* 72, 101852. URL: <https://doi.org/10.1016/j.tele.2022.101852>, doi:10.1016/j.tele.2022.101852.
- Raihan, M.M., Subroto, S., Chowdhury, N., Koch, K., Ruttan, E., Turin, T.C., 2025. Dimensions and barriers for digital (in)equity and digital divide: a systematic integrative review. *Digital Transformation and Society* 4, 111–127. doi:10.1108/DTS-04-2024-0054.
- Rießenberger, K.A., Fischer, F., 2023. Age and gender in gerontechnology development: Emphasizing the need for an intersectional approach. *Zeitschrift für Gerontologie und Geriatrie* 56, 189–194. doi:10.1007/s00391-023-02183-2.

- Schlossarek, M., Harmáček, J., Seidlová, A., Suchá, L., 2024. Inequalities and Social Capital as Factors of Subjective Well-Being: Case Study from Western Province, Zambia. *Journal of Happiness Studies* 25, 93. URL: <https://doi.org/10.1007/s10902-024-00778-z>, doi:10.1007/s10902-024-00778-z.
- Shiferaw, Y.A., 2024. A spatial analysis of the digital gender gap in South Africa: Are there any fundamental differences? *Technological Forecasting and Social Change* 204, 123443. URL: <https://doi.org/10.1016/j.techfore.2024.123443>, doi:10.1016/j.techfore.2024.123443.
- Valentín-Sívico, J., Canfield, C., Low, S.A., Gollnick, C., 2023. Evaluating the impact of broadband access and internet use in a small underserved rural community. *Telecommunications Policy* 47, 102499. URL: <https://linkinghub.elsevier.com/retrieve/pii/S0308596123000101>, doi:10.1016/j.telpol.2023.102499.
- Vermeer, S., Trilling, D., Kruikemeier, S., de Vreese, C., 2020. Online news user journeys: The role of social media, news websites, and topics. *Digital Journalism* 8, 1114–1141. URL: <https://doi.org/10.1080/21670811.2020.1767509>, doi:10.1080/21670811.2020.1767509, arXiv:<https://doi.org/10.1080/21670811.2020.1767509>.