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The hidden costs of care: Women's time use and healthcare capacity among farming households in rural and urban Nigeria

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Abstract
This study examined the relationship between women's time use and healthcare capacity among 3,413 rural and urban women in farming households in Nigeria using data from the 2024 National Time Use Survey conducted by the National Bureau of Statistics. Specifically, the study analysed differences in time allocation between paid and unpaid work, assessed women's perceptions and awareness of unpaid care work, and examined the influence of time spent on paid and unpaid work on women's healthcare capacity. The findings revealed significant rural-urban differences in time-use patterns. Rural women spent significantly more time on unpaid work and self-care activities than urban women, reflecting heavier domestic and caregiving responsibilities. The probit regression results showed that time spent on paid work had a significant positive effect on women's healthcare capacity, whereas time spent on unpaid work had no significant effect. The study concludes that although women contribute substantially to both productive and reproductive labour, unpaid care responsibilities continue to constrain their economic opportunities and healthcare capacity, particularly among rural women. The study recommends greater investment in rural infrastructure, women's economic empowerment, healthcare infrastructure, and gender-transformative interventions to reduce the burden of unpaid care work and improve women's healthcare capacity.

Keywords: Time use; paid and unpaid care work; healthcare access; rural–urban women; Nigeria

Introduction

Agriculture remains one of the most important sources of livelihood for Nigerians, especially in rural areas, where it is the main economic activity for millions of people. The sector plays a key role in employment, food security, and household welfare, with women playing pivotal roles in production, processing, marketing, and household maintenance[2]. Women in farming households are disadvantaged by a lack of resources and decision-making power, despite their significant contribution to agricultural production and household economies. The high burden of unpaid domestic and caregiving work they perform worsens

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[2]Food and Agriculture Organization. (2011). *The state of food and agriculture 2010–2011: Women in agriculture—Closing the gender gap for development*. FAO.

this situation[3]. These gendered inequalities affect women's time use, well-being, and access to healthcare[4].

Time use has been an important aspect of studies on gender inequalities in agricultural households because it mirrors how individuals divide their daily time among productive, reproductive, leisure, and other activities. In farming households, women often combine agricultural work with unpaid domestic tasks such as preparing food, cleaning, caring for children, collecting firewood and water, and caring for sick or elderly household members[5]. These activities form the cornerstone of household survival and social reproduction, yet they are excluded from national system of accounting and labour statistics[6]. Generally, women in farming households face time constraints, which constitute a significant obstacle that may limit their income opportunities, education, rest, and access to healthcare. Inequality in the distribution of labour within farming households is one of the causes of time poverty, describes a situation where excessive workloads arising from paid employment and unpaid domestic and care responsibilities limit individuals' ability to make meaningful choices about how they allocate their time across competing activities.[7]. In rural areas, women in the agricultural sector face higher levels of time poverty because of inadequate infrastructure, limited access to labour-saving technologies, and poor social services[8]. In most parts of Nigeria, rural women spend considerable time travelling long distances to fetch water, collect firewood, manually process agricultural products, and bear the burden of combining farm work with household caregiving responsibilities[9].

Access to healthcare remains a major development challenge in Nigeria, especially in rural areas where health facilities and social services are inadequate. According to the World Health Organization, women's access to healthcare is influenced by their socioeconomic status, mobility, decision-making power, and the availability of resources[10]. In farming households, these

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[4]Sara Yeatman, Stephanie Chamberlin, and Kathryn Dovel, "Women's (Health) Work: A Population-Based, Cross-Sectional Study of Gender Differences in Time Spent Seeking Health Care in Malawi," PLoS ONE 13, no. 12 (2018): e0209586, doi.org.

[5]C. Mark Blackden and Quentin Wodon, *Gender, Time Use, and Poverty in Sub-Saharan Africa* (Washington, DC: World Bank, 2006), 1.

[6] Indira Hirway, "Unpaid Work and the Economy: Linkages and Their Implications," *Indian Journal of Labour Economics* 58, no. 1 (2015): 1

[7]Aslihan Kes and Hema Swaminathan, *'Gender and Time Poverty in Sub-Saharan Africa,' in Gender, Time Use, and Poverty in Sub-Saharan Africa*, ed. C. Mark Blackden and Quentin Wodon (Washington, DC: World Bank, 2006), 16

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[10]World Health Organization, *Delivered by Women, Led by Men: A Gender and Equity Analysis of the Global Health and Social Workforce*, Human Resources for Health Observer

factors are often shaped by agricultural production systems, labour demand patterns, and gender norms that govern household responsibilities[1112]. Understanding the nexus between time use and access to healthcare is therefore essential in farming households[13]. Women often combine agricultural activities with unpaid domestic and reproductive work simultaneously, which can negatively affect their physical and mental health. During peak agricultural seasons, women may prioritise farm activities and household chores over their own healthcare needs. This is exacerbated by poor infrastructure in rural areas.[14].

Rural-urban inequalities in time use and healthcare access are important in Nigeria. Women in both settings are often burdened with balancing paid economic activities and unpaid care work. In urban areas, women simultaneously engage in formal employment or informal businesses while carrying out household care responsibilities. Although urban women may benefit from relatively better physical access to health facilities and other infrastructure, they also face serious time constraints because of the combination of full-time employment and household care responsibilities. In contrast, rural women face greater infrastructural challenges, including poor transportation networks, inadequate health facilities, and limited access to clean water and electricity, all of which exacerbate their time burden[1516].

Care work, particularly unpaid and gendered time allocation, is now recognised as a global priority under the Sustainable Development Goals (SDGs), especially SDG 5.4, which calls for the recognition and valuation of unpaid care and domestic work through social protection policies, public services, and infrastructure development[17]. Consequently, time-use surveys have become a key instrument for generating evidence on gender disparities in labour allocation and well-being. These surveys show that time constraints limit women's economic participation, empowerment, and access to social services, including healthcare. The National Time Use Survey (NTUS), implemented for the first time by the National Bureau of Statistics (NBS) in 2024, reveals how individuals allocate their time across different activities such as paid work, unpaid domestic work, caregiving, leisure, learning, and self-care[18]. The survey

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Series No. 24 (Geneva: World Health Organization, 2019),https://www.who.int/publications/i/item/9789241515467, 21

[11] Cheryl Doss, "Intrahousehold Bargaining and Resource Allocation in Developing Countries," *World Bank Research Observer* 28, no. 1 (2013): 58, 62

[12] Goodness C. Ndimele, Su Xin, and Edith V. Vikih, "Addressing Time Poverty among Women in Nigeria Through Building of Infrastructures," *Journal of International Cooperation and Development* 6, no. 3 (2023): 6, 7

[13]Blackden and Wodon, *Gender, Time Use, and Poverty*, 3

[14]Ndimele, Xin, and Vikih, "Addressing Time Poverty," 9

[15] Joy A. Osuji and Adekemi A. Obisesan, "Analysis of Time-Use Pattern Among Rural and Urban Women In Ondo State, Nigeria*," Journal of Science, Technology and Innovation Research* 1, Special Issue (2025): 72

[16]Ndimele, Xin, and Vikih, "Addressing Time Poverty," 2

[17] United Nations, *Transforming Our World: The 2030 Agenda for Sustainable Development* (New York: United Nations, 2015)

[18]National Bureau of Statistics, *Nigeria Time Use Survey 2024* (Abuja, Nigeria: National Bureau of Statistics, 2026),

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used the International Classification of Activities for Time Use Statistics (ICATUS) framework, which provides a standardised approach to measuring time allocation across activities[19].

This study aims to contribute to the literature on time use in paid and unpaid work among farming households by expanding the discussion to healthcare access. While studies on time use in agriculture have focused on gender, productivity, labour participation, access to agricultural resources, and outcomes such as food security, there is limited evidence on the influence of time use on women's healthcare access in farming households[20]. This study aims to fill that gap. In addition, it contributes to the literature by examining these relationships through an intersectional lens, considering women's place of residence and the rural-urban dynamics that shape time use and healthcare access. Accordingly, this study investigates how women in farming households across rural and urban Nigeria allocate their time and how this affects their access to healthcare.

Specifically, the study seeks to:

1. Examine the time use among women in farming households in rural and urban areas in Nigeria;
2. Assess differences in time use on paid and unpaid work activities;
3. Assess differences in the perception and awareness of paid and unpaid care work among women in urban and rural areas; and
4. Examine the influence of time spent on paid and unpaid work on rural and urban women's healthcare capacity.

Theoretical Framework

This study is situated within the theoretical frameworks of the Gender Division of Labour Theory, Time Poverty Theory, and the Behavioral Model of Healthcare Utilisation. Together, these frameworks explain how the unequal gendered distribution of paid and unpaid work influences women's capacity to access healthcare in rural and urban areas of Nigeria.

Gendered division of labour theory

The Gendered Division of Labour theory posits that the division of labour within society is determined by biological differences and socially constructed gender expectations[21]. The distribution of responsibilities is not solely dependent on individuals' capabilities or choices but is instead shaped by prevailing cultural norms, institutions, and power structures that prescribe

[19]United Nations Statistics Division, *International Classification of Activities for Time Use Statistics 2016 (ICATUS 2016)* (New York: United Nations, 2017)
[20]Olajumoke Adeyeye et al., "Gender, Time Poverty and Health Outcomes among Rural Households in Southwest Nigeria," *Gender and Behaviour* 17, no. 2 (2019)
[21]Anca Gheaus, "The Gendered Division of Labor," in The Oxford Handbook of the Philosophy of Work, ed. Julian David Jonker and Grant J. Rozeboom (Oxford: Oxford University Press, 2025), online edition, March 24, 2026

different roles for men and women[22]. From the perspective of this theory, women are generally expected to bear a greater share of household chores and caregiving responsibilities, while men devote more time to income-generating activities. These gendered expectations influence women's allocation of time to economic activities, leisure, education, and even healthcare. Patriarchal systems in many African cultures, including Nigeria, reinforce the notion that women are responsible for household chores such as cleaning, cooking, childcare, caring for older people, collecting water, and performing other domestic tasks[23]. Women who participate in economic activities are still burdened with a larger share of domestic and unpaid care work, resulting in what is often referred to as the "triple burden" of productive, reproductive, and community roles[24].

The relevance of this theory to the present study lies in its ability to explain differences in time use between rural and urban women. Rural women are more likely to be engaged in agriculture or the informal sector due to limited transportation infrastructure and inadequate access to labour-saving technologies. Women in urban areas, despite having greater opportunities for formal and informal employment, may also face substantial unpaid caregiving responsibilities. The heavy burden of unpaid work reduces women's discretionary time, thereby limiting their capacity to access quality healthcare.

The Time poverty framework

The concept of Time Poverty complements the Gendered Division of Labour Theory by explaining how excessive work burdens constrain individuals' ability to engage in activities that promote well-being, including access to healthcare. Time poverty occurs when individuals allocate excessive amounts of time to paid and unpaid work, leaving insufficient time for rest, leisure, self-care, education, and healthcare utilisation[25].

Unlike income poverty, which focuses on inadequate financial resources, time poverty emphasises constraints arising from the unequal allocation of time. Women are particularly vulnerable to time poverty because they often combine income-generating activities with extensive unpaid domestic and caregiving responsibilities[26]. Time poverty has important implications for access to healthcare. Women who spend long hours on agricultural and domestic tasks may postpone medical visits or fail to access healthcare services because of time constraints, financial limitations, or competing household responsibilities[27]. This is especially relevant in rural Nigeria, where women may have to travel

[22]Ithazam George and Moly Kuruvilla, "Conceptualizing Gender Mainstreaming and Women Empowerment in the 21st Century," in *Handbook of Research on New Dimensions of Gender Mainstreaming and Women Empowerment*, ed. Moly Kuruvilla and Ithazam George (Hershey, PA: IGI Global, 2020)
[23]Kes and Swaminathan, 'Gender and Time Poverty,' 15
[24]Caroline Moser, Gender Planning and Development: Theory, Practice and Training (London: Routledge, 2012), 49
[25]Kes and Swaminathan, 'Gender and Time Poverty,' 6
[26]Hirway, "Unpaid Work and the Economy," 5
[27]Ndimele, Xin, and Vefemsi, "Addressing Time Poverty," 9

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long distances to reach health facilities while simultaneously managing domestic and agricultural duties[28].

The Time Poverty theory is therefore relevant to this study because it explains how women's allocation of time to paid and unpaid activities can constrain their ability to access healthcare services. The framework also supports the study's focus on comparing rural and urban women, whose time burdens and infrastructural conditions may differ substantially.

The Behavioural model of healthcare utilization

The Behavioural Model of Healthcare Utilisation provides a framework for understanding healthcare utilisation and, therefore, offers a useful basis for examining healthcare capacity and its determinants. Developed by Ronald M. Andersen in 1968, the model is anchored on three pillars: predisposing, enabling, and need factors. Predisposing factors include demographic and socio-economic characteristics such as age, education, sex, and cultural beliefs, while enabling factors are the resources that facilitate healthcare utilisation. These include income, employment, health insurance, transportation, and time availability. Finally, need factors comprise individuals' health needs, whether perceived or evaluated, that necessitate healthcare intervention[29].

This study draws on the enabling component of the framework by treating time as a resource required for healthcare utilisation. While studies adopting the Behavioural Model have traditionally focused on financial and structural factors as enablers or constraints to healthcare utilisation, recent studies have highlighted the importance of time as a critical enabling resource. This is particularly relevant for women, who often struggle to balance the competing, and frequently simultaneous, demands of paid and unpaid work[30].Without adequate control over their time, women may find it difficult to access healthcare even when services are available. The Andersen Behavioural Model therefore provides a suitable framework for explaining how time allocated to daily activities influences women's capacity to access healthcare. In addition, the model can be extended to examine how rural and urban contexts shape women's time use and healthcare capacity. This is because infrastructural disparities and limited access to labour-saving technologies in rural areas, compared with urban areas, may influence women's involvement in agricultural and domestic activities and, consequently, their capacity to access healthcare.

Collectively, these theories and models provide an integrated framework for understanding women's time use and healthcare capacity in Nigeria. They suggest that women's allocation of time between paid and unpaid work, and its effect on healthcare capacity, may differ between rural and urban settings.

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[30]World Health Organization, Delivered by Women, Led by Men

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Methodology

Data and sampling

The study utilised data from the first NTUS, implemented in four Nigerian states: Lagos, Cross River, Borno, and Kaduna[31]. The survey applied the ICATUS 2016 framework to ensure the comparability and standardisation of time-use statistics. Data were collected through face-to-face interviews using computer-assisted personal interviewing devices. The NTUS employed a three-stage stratified sampling design to ensure that the sample was representative of the selected states and the two agricultural seasons (dry and wet). The sampling frame was derived from the master sampling frame developed by the NBS using the 2023 digitised Enumeration Area (EA) Demarcation conducted by the National Population Commission in preparation for the National Population and Housing Census. The sampling frame contained information on enumeration areas, household counts, and geospatial data. In each state, 60 EAs were selected using Probability Proportional to Size sampling based on the number of households in each EA. Of these, 30 EAs were surveyed during the dry season and the remaining 30 during the wet season. Within each EA, 15 households were selected using systematic random sampling following a household listing exercise. Subsequently, two eligible individuals aged 15 years and above were selected from each household using the Kish Grid method to ensure randomness and gender balance.

The survey covered 6,431 individuals aged 15 years and above from 3,600 households across the four states. Of these, 3,413 (53%) were female and 3,018 (47%) were male. The present study used data from the female respondents only.

Measures and estimation techniques

The dependent variable in this study is healthcare capacity, proxied by respondents' ability to pay for healthcare services. This is a binary variable that takes the value of 1 if the respondent reported personally paying for healthcare services and 0 if the expenses were covered by others, including spouses, family members or relatives, the government, non-governmental organisations, civil society organisations, faith-based organisations, or other sources (Table 1). This variable reflects the degree of financial autonomy women have regarding healthcare-related expenses, together with the freedom to utilise healthcare services. It therefore represents an important dimension of healthcare access and women's empowerment. The literature establishes a positive relationship between women's economic empowerment, financial independence, and healthcare access and decision-making in Africa[32].

The main independent variables are time spent on paid and unpaid work. Paid work includes employment and production-related activities undertaken for income generation or for own final use, while unpaid work comprises unpaid domestic services, caregiving activities, and voluntary services provided within households and communities. These variables were derived from the time-use survey, which asked respondents to report the total time they spent on different

[31]National Bureau of Statistics, *Nigeria Time Use Survey 2024*
[32]World Health Organization, Delivered by Women, Led by Men

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categories of activities during the previous 24 hours. Paid and unpaid work were included because the burden of paid employment, together with competing household responsibilities, may limit women's ability to access healthcare[33][34].The study also included place of residence to capture differences between rural and urban women in healthcare access. This was measured as a binary variable indicating whether the respondent resided in a rural or urban area (Table 1). Employment opportunities, infrastructure, and the availability of social services vary by place of residence and may therefore influence women's healthcare access and capacity[35].

The model also included several control variables to minimise omitted variable bias. These comprised respondents' age, ownership of a mobile phone, internet access, rights to agricultural land, and participation in agricultural activities such as farming, fishing, and livestock rearing. Healthcare utilisation, health-seeking behaviour, and financial independence vary across age groups[36].Access to the internet through mobile phones can enhance women's access to healthcare by improving awareness of health information, available healthcare services, and financial opportunities, thereby strengthening their healthcare access and decision-making capacity[37].Rights to agricultural land represent women's economic empowerment and ownership of productive assets. Women's land ownership can strengthen their financial position, improve their household bargaining power, and increase their autonomy in making healthcare decisions[38][39]. Participation in agricultural activities was also included in the model. Women engaged in farming, fishing, or livestock rearing are expected to experience different workloads, income patterns, and healthcare access challenges from those who are not engaged in these activities[40].

To achieve the study objectives, both descriptive and econometric techniques were employed. A two-sample *t*-test was used to examine differences in time spent on paid and unpaid work between rural and urban women. The *t*-test is appropriate for this analysis because it compares the mean values of two independent groups (continuous variables) and determines whether the observed differences are statistically significant. To examine the effect of time spent on paid and unpaid work on healthcare capacity, the study employed a probit regression model. The probit model is appropriate because the

[33]Kes and Swaminathan, 'Gender and Time Poverty,' 22, 23
[34]Hirway, "Unpaid Work and the Economy," 8
[35]Sarker et al., "Gendered Time Poverty"
[36]Ngozi M.Obilor, "Gender and Health Seeking Behavior in Rural Nigeria," *Unizik Journal of Gender Research* 2, no. 1 (2023): 57
[37]Azeez O.Kazeem, "Mobile Phone and Internet Access as Correlates of Healthcare Decision-Making Participation among Married Mothers in Northern Nigeria," *Discover Public Health* 23, no. 1 (2026): 8 of 16
[38]Viola N.Nyakato, Charles Rwabukwali, and Sabina Kools, "Women's Land Rights and Maternal Healthcare in Southwestern Uganda: Exploring the Implications of Women's Decision-Making Regarding Sale and Use of Land on Access to Maternal Healthcare," *African Journal of Reproductive Health* 24, no. 1 (2020):70
[39] Maja Schling and NicolásPazos, "Effective Land Ownership, Female Empowerment, and Food Security: Evidence from Peru," *World Development* 181 (2024): 106680
[40]Food and Agriculture Organization, *The Status of Women in Agrifood Systems* (Rome: FAO, 2023)

dependent variable is binary, taking the value of 1 if the respondent had healthcare capacity and 0, if otherwise[41].

Table 1: Description of study variables

Variable	Description and units
Dependent Variables	
Healthcare capacity	Women's financial autonomy to independently access healthcare services proxied by an individual's ability to pay for healthcare services (1 – self; 0 – others)
Independent Variables	
Paid time	Time spent on paid employment and production-related activities (minutes)
Unpaid time	Time spent on domestic, caregiving, and volunteer services within households and communities (minutes)
Location	Whether the respondent lives in urban or rural areas (urban – 1; rural – 2)
Controls	
Age	Age of respondent (years)
Mobile phone	Ownership of mobile phone (yes – 1; no – 0)
Internet	Access to internet (yes – 1; no – 0)
Land right	Own, use or hold use rights of any agricultural land (yes – 1; no – 0)
Ag Work	Work or help in any household farming, animal rearing or fishing activities (yes – 1; no – 0)

Results and Discussion

Socio-economic characteristics of respondents

The descriptive statistics presented in Table 2 reveal significant differences between women living in rural and urban areas. The mean age of urban women (36.7 years) was slightly higher than that of rural women (34.3 years). A greater proportion of urban women owned mobile phones and had internet access than rural women. Specifically, 78% of urban women owned mobile phones, compared with 52% of rural women. Similarly, 57% of urban women had internet access, compared with 26% of rural women, highlighting the digital divide between rural and urban populations in Nigeria. These findings are consistent with the literature, which shows that urban residents generally have better information and communication technology infrastructure and connectivity than their rural counterparts[42].

[41]Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, 7th ed. (Boston: Cengage Learning, 2020)

[42]Oluwayemi-OniyaAderibigbe and Trynos Gumbo, "Impact of Information and Communication Technology on Mobility of Urban and Rural Households: A Comparative Study from Nigeria," *Urban, Planning and Transport Research* 12, no. 1 (2024)

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The lower participation of urban women in agricultural activities reflects the fact that agriculture remains the predominant source of livelihood for rural households in Nigeria, whereas urban women have more diverse livelihood opportunities, including wage and salaried employment. These findings are consistent with those of the FAO[43], which reports that women in rural African communities make substantial contributions to agricultural production while simultaneously undertaking domestic and caregiving responsibilities.

Table 2: Summary statistics of variables

RURAL	N	Mean	SD	Min	Max
Age	1178	34.288	15.061	15	87
Mobile phone	1178	0.522	0.500	0	1
Internet	1178	0.265	0.442	0	1
Land right	1178	0.281	0.512	0	1
Ag work	1178	0.612	0.487	0	1
URBAN					
Age	2235	36.701	14.716	15	90
Mobile phone	2235	0.783	0.412	0	1
Internet	2235	0.574	0.495	0	1
Land right	2235	0.461	0.457	0	1
Ag work	2235	0.291	0.455	0	1

Time use patterns among rural and urban women

Table 3 shows differences in time allocation to daily activities among rural and urban women. Time spent on self-care was the highest for women in both settings, which is not surprising given that sleep accounts for a substantial proportion of this time. This was followed by unpaid work among rural women and leisure and social activities among urban women. Time spent on learning or studying was the lowest for women in both settings. On average, rural women spent more time on unpaid work (200.7 minutes) than urban women (187.3 minutes), reflecting the heavier burden of unpaid care and domestic work associated with poor infrastructure in rural areas. Similarly, rural women (199 minutes) spent slightly more time on leisure and social activities than urban women (191 minutes). Meanwhile, women in both settings spent a similar amount of time on paid work, suggesting that they were actively engaged in income-generating activities alongside their domestic and household responsibilities.

These findings are consistent with previous research, which shows that women in sub-Saharan Africa spend a substantial proportion of their time on unpaid domestic and caregiving work, particularly in rural areas where persistent

[43]Food and Agriculture Organization, *The State of Food and Agriculture 2010–2011: Women in Agriculture—Closing the Gender Gap for Development* (Rome: FAO, 2011)

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infrastructural deficiencies increase the burden of household tasks such as collecting water and fuel[44][45].

Table 3: Summary statistics of time use among rural and urban women (minutes)

RURAL	N	Mean	SD	Min	Max
Time paid	1178	175.44	173.19	0	910
Time unpaid	1178	200.67	114.58	0	725
Time learning	1178	13.374	67.60	0	635
Time leisure/social	1178	191.44	136.15	0	985
Time selfcare	1178	433.67	118.03	85	935
URBAN					
Time paid	2235	174.96	182.47	0	840
Time unpaid	2235	187.33	124.23	0	705
Time learning	2235	17.32	75.85	0	600
Time leisure/social	2235	198.22	149.57	0	1386
Time selfcare	2235	411.46	124.12	0	1190

Perceptions of paid and unpaid work

Table 4 presents the results on the perceptions of paid and unpaid work among rural and urban women in Nigeria. Overall, the perceptions and understanding of paid and unpaid work are broadly similar among women in both rural and urban settings.

The findings reveal a moderately high level of awareness of unpaid work among both rural and urban women, with many respondents indicating that they understood the concept to a large extent, although this level of awareness was more pronounced among urban women. Similarly, a larger proportion of women believed, to a large extent, that unpaid work is undervalued[46].Women in both settings also appeared to be satisfied with the household division of labour between men and women in activities traditionally dominated by women, such as fetching water, cooking, washing, and cleaning. Across all these activities, women in urban areas appeared to be more satisfied than their rural counterparts. This may reflect differences in work intensity, support systems, and access to better infrastructure, such as electricity and labour-saving

[44]ibid, 76

[45]Ndimele, Xin, and Vikih, "Addressing Time Poverty," 5

[46]SalimahValiani, *The Africa Care Economy Index* (Nairobi: African Women's Development and Communication Network [FEMNET] and United Nations Development Programme [UNDP], 2022)

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technologies, in urban areas[47]. When introduced in rural areas, these technologies were shown to improve the health and livelihoods of rural women and their children[48]. Nevertheless, the findings suggest that household responsibilities remain highly gendered across both rural and urban settings. Similar conclusions were reported in studies conducted in Nigeria, where women often regard caregiving as a socially valued contribution despite its heavy burden. A typical example is the practice of grandmothers providing postpartum care, commonly referred to as "Ọmụgwọ" in southeastern Nigeria[49].

Table 4: Differences in perception of paid and unpaid work among rural and urban women

RURAL	N	Mean	SD	Min	Max
Knowledgeable about unpaid work	1178	1.672	0.722	1	3
The extent to which unpaid work is undervalued	1001	1.504	0.564	1	3
Unpaid work critical for wellbeing *(Some extent – 1; large extent – 2; No idea – 3)*	1001	2.319	0.536	1	3
Satisfaction with the household division of labour between male and female					
Fetching of water	1178	2.867	0.900	1	4
Collecting firewood	1178	2.842	0.912	1	4
Cooking/meal preparation	1178	2.700	1.054	1	4
Washing and drying clothes	1178	2.772	0.974	1	4
Cleaning the house *(Not satisfied at all – 1; fairly satisfied – 2; Satisfied – 3; Very satisfied – 4)*	1178	2.699	0.997	1	4
Feeling about life doing unpaid care work *(Not happy – 1; slightly happy – 2; Happy – 3; Very happy – 4; Undecided – 5)*	1178	2.494	1.144	1	5
URBAN					
Knowledgeable about unpaid work	2235	1.791	0.764	1	3
The extent to which unpaid work is undervalued	1768	1.571	0.553	1	3
Unpaid work critical for wellbeing	1768	2.318	0.577	1	3

[47]International Fund for Agricultural Development, *Toolkit: Reducing Rural Women's Domestic Workload through Labour-Saving Technologies and Practices* (Rome: IFAD, 2016), 1

[48]Racheal Namulondo and Bernard Bashaasha, "Labour-Saving Technologies Mitigate the Effect of Women's Agriculture Time-Use Constraints on Stunting in Rural Uganda," *African Journal of Agricultural and Resource Economics* 17, no. 3 (2022): 280

[49]Chioma C. Asuzu, ""Ọmụgwọ" As Unpaid Labor? The Perceptions of Postpartum Caregiving Among Older Grandmothers in Southeast Nigeria," *Innovation in Aging* 7, no. 1 (2023)

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Satisfaction with the household division of labour between male and female					
Fetching of water	2235	2.982	0.860	1	4
Collecting firewood	2235	2.852	0.902	1	4
Cooking/meal preparation	2235	2.858	1.019	1	4
Washing and drying clothes	2235	3.016	0.867	1	4
Cleaning the house	2235	2.911	0.931	1	4
Feeling about life doing unpaid care work	2235	2.774	1.260	1	5

**The variables are measured using a Likert scale. The scale highlighted for rural areas is also used for urban areas*

Perceptions of women on gender norms shaping household roles

Table 5 presents women's perceptions of gender norms relating to the roles of men and women within the household. The results show that women in both rural and urban settings hold broadly similar views on these norms. Regarding leadership and decision-making within the household, the majority of women in both settings generally agree with the norms that men should be the heads of households and should make household decisions. However, they are undecided about the norm suggesting that resources are better managed when a man heads the household. A similar pattern is observed for norms relating to women's roles within the household. Women in both settings generally agree that the paid work undertaken by men is as important as the unpaid domestic work predominantly carried out by women.

However, regarding the care of older people and sick household members, women were largely undecided as to whether this should be the primary responsibility of women. Similarly, they were undecided about whether women should require their husbands' permission to leave the home. In contrast, there was overwhelming support for the norm that men and women should work together for the benefit of the family, with the majority of women indicating that they completely agreed with this statement. Likewise, there was overwhelming rejection of the norm suggesting that husbands are justified in beating their wives if they do something wrong. Women in both rural and urban settings completely disagreed with this statement. Although the majority of women also disagreed with the norm that girls under the age of 18 should be married, urban women expressed stronger opposition by completely disagreeing with the statement, whereas rural women mostly disagreed.

The continued acceptance of patriarchal household structures reflects deeply entrenched gender norms in Nigeria and many other African societies[50]. The relatively low level of support for wife beating and child marriage among women in both rural and urban settings is encouraging and may indicate gradual shifts in attitudes towards gender-based violence and women's rights.

[50]Tüfekçi, Özgür, and Mohammed Hashiru. "How patriarchal power structures undermine women's empowerment and gender equality: The case of Nigeria." In *The Economics of Gender Equality in the Labour Market*. Routledge, 2021

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Table 5: Perception of gender norms on shaping household roles among urban and rural women

RURAL	N	Mean	SD	Min	Max
Girls below 15 years old can get married	1178	1.801	1.277	1	5
Wives should not go outside the house without their husband's permission	1178	3.288	1.521	1	5
Paid work that men do outside is as important as domestic and care work that women do	1178	3.733	1.152	1	5
It is women's responsibility to take care of the aged and the sick person	1178	2.604	1.379	1	5
Men should make most decisions of the household	1178	3.873	1.240	1	5
Husband can beat wife if she does something wrong	1178	1.367	0.923	1	5
Men and women should work together for the benefit of the family	1178	4.57	0.769	1	5
Men should always be the head of the household	1178	4.308	0.972	1	5
Resources are better managed when a male heads the household. *(Completely disagree – 1; Mostly disagree – 2; Undecided – 3; Mostly agree – 4; Completely agree – 5)*	1178	3.048	1.493	1	5
URBAN					
Girls below 15 years old can get married	2235	1.346	0.813	1	5
Wives should not go outside the house without their husband's permission	2235	3.489	1.428	1	5
Paid work that men do outside is as important as domestic and care work that women do	2235	3.546	1.272	1	5
It is women's responsibility to take care of the aged and the sick person	2235	2.838	1.280	1	5
Men should make most decisions of the household	2235	3.806	1.123	1	5
Husband can beat wife if she does something wrong	2235	1.241	0.729	1	5
Men and women should work together for the benefit of the family	2235	4.603	0.779	1	5
Men should always be the head of the household	2235	4.424	0.866	1	5
Resources are better managed when a male heads the household.	2235	2.879	1.389	1	5

**The variables are measured using a Likert scale. The scale highlighted for rural areas is also used for urban areas*

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Differences in time use between rural and urban women

The results of the two-sample t-test presented in Table 6 further confirm the significant differences in time spent on self-care and unpaid work between women in rural and urban settings. The findings show that rural women devote a larger proportion of their time to unpaid activities, such as domestic and household care, than urban women ($p < 0.01$). This confirms the findings of previous studies, which reported that women bear a heavy burden of unpaid work due to poor infrastructure, limited access to labour-saving technologies, inadequate access to clean water and energy, and reliance on household labour for production[51][52].

A significant difference was also observed in the time spent on self-care activities. Rural women were found to spend more time on self-care activities, such as eating, sleeping, personal hygiene and other personal care, than urban women ($p < 0.01$). This may partly reflect differences in daily routines, work patterns, or the greater amount of time devoted to rest and household maintenance in rural settings. However, there were no statistically significant differences in the time spent on paid work, learning or study, or leisure and social activities.

Table 6: Differences in time-use between rural and urban women (two-sample t-test)

	obs1	obs2	Mean1	Mean2	dif	S.E.	t value	p value
Time paid work	2235	1178	174.962	175.448	-.486	6.457	-.1	.940
Time unpaid work	2235	1178	187.337	200.677	-13.34	4.357	-3.05	.002
Time learning activities	2235	1178	17.328	13.375	3.953	2.632	1.5	.134
Time leisure and socials	2235	1178	198.222	191.44	6.782	5.224	1.3	.195
Time selfcare activities	2235	1178	411.468	433.67	-22.202	4.394	-5.05	.000

Drivers of healthcare capacity among women

The regression results presented in Table 7 reveal that time spent on paid work had a significant positive effect on women's healthcare capacity ($\beta = 0.001$; $p < 0.01$). This implies that the more time women spend in paid employment or other income-generating activities, the more likely they are to independently finance their healthcare needs. Income earned from paid work, together with greater control over financial resources, enhances women's ability to make independent decisions regarding their own health and that of their families[53][54].

[51]Andrew Onokerhoraye et al., "Recognising the Importance of Unpaid Care and Domestic Work for Policies on Rural Women's Health in Nigeria," CPED Policy Brief Series, Center for Population and Environmental Development, 2023

[52]World Bank, "The Gendered Burden of Water Collection in Sub-Saharan Africa," World Bank Data Interactive, March 13, 2024, https://www.worldbank.org/en/data/interactive/2024/03/13/gendered-burden-of-water-collection-in-afe-afw-sub-saharan-africa.

[53]A. K. M. Mainuddin et al., "Women Empowerment and Its Relation with Health Seeking Behavior in Bangladesh," *Journal of Family and Reproductive Health* 9, no. 2 (2015): 67

[54]Organisation for Economic Co-operation and Development (OECD), *Gender Equality in a Changing World: Taking Stock and Moving Forward*, Gender Equality at Work Series (Paris: OECD Publishing, 2025)

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In contrast, time spent on unpaid work did not have a statistically significant effect on healthcare capacity.

Women's age was also found to have a significant positive effect on healthcare capacity ($\beta = 0.14$; $p < 0.05$). This suggests that older women are more likely to have greater healthcare capacity. One possible explanation is that increasing age is associated with greater experience in managing healthcare needs and making healthcare-related decisions. Mobile phone ownership had a significant negative coefficient because of the coding structure of the variable (1 = yes; 2 = no). Consequently, the results should be interpreted as indicating that mobile phone ownership has a positive effect on women's healthcare capacity. This finding is consistent with previous studies, which show that mobile phones, particularly when combined with internet access, improve access to health information, financial services, and social networks, thereby enhancing women's access to healthcare[55]. Place of residence, internet access, land rights, and participation in agricultural activities were not statistically significant predictors of healthcare capacity. Overall, the regression results identify time spent on paid work as a key determinant of women's healthcare capacity in Nigeria, highlighting the importance of women's economic empowerment in improving their access to healthcare and overall well-being.

Table 7: Drivers of healthcare capacity among rural and urban women

Healthcare capacity	Coef.	S.E.	t-value	p-value	[95% Conf	Interval]	Sig
Time paid work	.001	.000	5.70	.000	.001	.002	***
Time unpaid work	.000	.000	0.26	.792	-.001	.001	
Location							
Rural	-.049	.088	-0.56	.573	-.221	.122	
Age	.014	.003	5.29	.000	.009	.019	***
Mobile phone	-.498	.092	-5.43	.000	-.678	-.319	***
Internet	.083	.083	1.00	.317	-.080	.247	
Land right	-.058	.102	-0.57	.566	-.257	.141	
Ag. Work	.137	.105	1.31	.192	-.069	.342	
Constant	-.522	.293	-1.78	.075	-1.096	.052	*
Mean dependent var		0.445	SD dependent var			0.497	
Pseudo r-squared		0.074	Number of obs			1115	
Chi-square		113.872	Prob> chi2			0.000	
Akaike crit. (AIC)		1436.250	Bayesian crit. (BIC)			1481.399	

*** p<.01, ** p<.05, * p<.1

Conclusion

This study aimed to investigate the relationship between time use and the healthcare capacity of women in farming households in rural and urban Nigeria. It contributes to the literature on gendered time allocation, unpaid care work, and women's well-being by providing empirical evidence on how time spent on paid and unpaid work influences women's ability to independently access healthcare services.

[55]Kazeem, "Mobile Phone and Internet Access" 8 of 16

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The study found that women in both rural and urban settings spend more time on unpaid work than on paid work, with rural women devoting more time to unpaid work than their urban counterparts. These findings reflect two important issues. First, women's heavy burden of unpaid care work, including domestic responsibilities and household caregiving, is pervasive regardless of where they live. Second, women in rural areas bear a greater burden of unpaid care work, reflecting infrastructural deficits and limited access to labour-saving technologies that support agricultural and domestic activities. These findings reinforce existing evidence that rural women in Africa continue to shoulder a disproportionate share of unpaid care and household survival activities.

The findings also show that women recognise the importance of unpaid care work to household well-being while acknowledging that much of this work remains unrecognised. Furthermore, traditional norms that assign household leadership to men and prescribe gendered divisions of labour remain widespread in both rural and urban settings and are largely accepted by women. These findings suggest that patriarchal social structures continue to shape women's work responsibilities and patterns of time allocation. The inferential analysis further revealed that time spent on paid work has a positive effect on women's healthcare capacity. This implies that women's participation in income-generating activities enhances their financial independence and increases their ability to pay for healthcare services.

The study recommends increased investment to reduce the rural-urban infrastructure gap in Nigeria. Although urban areas also face infrastructural challenges, the situation is more severe in rural areas. Policies should also support women in farming households through the provision of labour-saving technologies that reduce the time required for agricultural processing and household chores. Such interventions would help reduce women's time poverty. While increasing attention is being given to integrating unpaid care work into national accounting systems in line with Sustainable Development Goal 5.4, accelerating this process would promote its formal recognition and ensure that work performed predominantly by women is appropriately valued through adequate income, social protection, and labour rights. Governments at all levels in Nigeria should also invest in healthcare by expanding rural healthcare infrastructure, deploying mobile health services, and improving the recruitment, retention, and remuneration of healthcare personnel to reduce brain drain in the health sector. Finally, gender-transformative interventions aimed at addressing discriminatory gender norms, which underpin structural inequalities, should be implemented. Such interventions would promote more equitable sharing of household responsibilities, challenge restrictive gender norms, and reduce the disproportionate burden of unpaid care work borne by women.

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