Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Understanding the Factors Influencing Gender Differences in Healthcare Utilization Among Households in Tanzania

Michael Todaro

michael.todaro@mzumbe.ac.tz

Mzumbe University

Robert Lihawa

Mzumbe University

Lihoya Chamwali

Mzumbe University

Research Article

Keywords: Gender, Gender difference, Healthcare, utilization, Healthcare utilization, Household, Tanzania

Posted Date: November 23rd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11465614/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Understanding the Factors Influencing Gender Differences in Healthcare Utilization Among Households in Tanzania

Michael Todaro[1] michaeltodaro17@gmail.com, Robert M. Lihawa[2] rlihawa@mzumbe.ac.tz, Lihoya Antony Chamwali[3] lichamwali@mzumbe.ac.tz

[1,2,3] Department of Economics, Faculty of Social Sciences, Mzumbe University, Morogoro-Tanzania.

Abstract

Background and Aims:

Healthcare utilization among households is essential for maintaining overall wellbeing. However, it varies widely across the globe due to differences in socioeconomic status, geographical location, cultural beliefs and resources availability. In Tanzania, gender differences significantly influence healthcare utilization among households. This study aimed at assessing factors influencing gender differences in healthcare utilization among households in Tanzania.

Methods:

A non-experimental research design was used employing the Demographic and Health Survey secondary data for Tanzania, year 2022 for 2,445 households. Binary probit and Probit Oaxaca Decomposition models were used for analysis.

Results

Household size (0.099, $p<0.001$), partner's age (0.105, $p<0.05$), education level and self-reported health status, significantly increased probability of healthcare utilization. Household head's age (0.148, $p<0.001$) and employment status reduced the probability of healthcare utilization. The study also found the gender gap in healthcare utilization among households, women utilizing more healthcare than men. The healthcare utilization gap between men and women among households was found to be resource-based gender gap. Household size (0.004, $p<0.1$), distance to health facility (0.006, $p<0.1$) and primary education level (0.006, $p<0.05$) were found reducing the gap while secondary education level (0.042, $p<0.01$) found increasing the gender gap in healthcare utilization.

Conclusion:

The study concluded a need for educational programs at all levels to include health and gender equality topics to promote balanced healthcare utilization hand in hand investing in local health facilities and improved transport services. There is a need also for policies that promote workplace health awareness and flexible healthcare access options.

Keywords*: Gender, Gender difference, Healthcare, utilization, Healthcare utilization, Household, Tanzania*

I. Introduction

Healthcare utilisation among households is essential for maintaining overall wellbeing (Al-Worafi, 2023; Frazier et al., 2023; Jakovljevic et al., 2023). However, it varies widely across the globe due to differences in socioeconomic status, location, cultural values, and resource accessibility (Kagaigai et al., 2023; Kalindi et al., 2023; Allen et al., 2022). SDG 3 targets on good health and wellbeing, advocating health services to all people. In developed nations, households often have better access to a wide range of healthcare services leading to higher utilisation rates (Al-Worafi, 2023; Jakovljevic et al., 2023). On the other hand, developing nation, households often face shortfalls of facilities, limited education in health and cost to cover medication limiting healthcare utilisation (Kagaigai et al., 2023; Frazier et al., 2023).

Around the world men and women have different levels of healthcare utilisation (Nikoloski et al., 2021; Katoue et al., 2022; Asi & Williams, 2020; WHO, 2024). In many countries, women tend to have a higher demand for healthcare especially for maternity care and reproductive health (Ravindran & Govender, 2020; Starrs et al., 2018). However, women face financial and social barriers which lower their ability to healthcare utilisation (Seidu et al., 2020; Wongnaah et al., 2025). In contrast, men have less healthcare utilisation, as they do it for more severe conditions (Das et al., 2018; Eley et al., 2019; Huang et al., 2024). These differences create an imbalance in how people access and use healthcare, affecting overall health outcomes.

Households in Africa face inadequate health facilities and transportation, long distances to health facilities and financial issues hence limiting their healthcare utilisation (Gordon et al., 2020; Filip et al., 2022). Poverty remains a major barrier with millions unable to afford healthcare costs, leading to reliance on traditional medication (Sanders, 2023; Luyckx et al., 2021). Cultural norms and perceptions also influence healthcare utilisation particularly among men, who avoid medical attention due to societal expectations (Gough & Novikova, 2020). Universal health coverage programmes, mobile health clinics and community awareness initiatives are done in Africa to increase utilisation of healthcare among households (Audi et al., 2020; Mbunge, 2022).

Healthcare access is a vital human right (Castillo et al., 2017; Verulava, 2021; Dos Santos et al., 2021). Healthcare utilisation in Tanzania is low, with significant disparities in access and service uptake (Kitole et al, 2022; Anasel et al., 2024; Shao, 2022; Afriyie et al., 2024; Tungu et al., 2020). As per Tanzania Demographic and Health Survey (2022), about 52% women and 47% men sought healthcare when ill, highlighting a gender gap in service utilisation (MoH, 2023). Long distance to

facilities and shortage of medical personnel contribute to these trends (Kapologwe et al., 2020). Rural areas are particularly affected, with utilisation rates 30-40% lower than urban zones (WB, 2022).

In addition, low utilisation is contributed by financial limitations, and cultural norms of which differs across gender (Kapologwe et al., 2020; Mndolwa & Alhassan, 2020). Kagaigai et al., (2023) informs approximately 30% of Tanzanians face catastrophic health expenditure when seeking medical care. Many households have no choice to decide between covering other essentials and paying for healthcare (Kaijage et al., 2023; Shao, 2022; Kagaigai et al., 2023). This financial strain often results in delayed treatment and complete avoidance of necessary medical services.

Healthcare utilisation in Tanzania is a diverse issue shaped by progress and persistent challenges (Kapologwe et al., 2020; Rafiq et al., 2019). It remains a major challenge in the nation due to various issues including geographic barriers, limited healthcare centres especially in rural areas and financial constraints (Kapologwe et al., 2020; Nuhu et al., 2020; Amani et al., 2020). In rural areas where majority resides, healthcare centres are often away communities, becoming a challenge for people access essential healthcare (Kapologwe et al., 2020; Amani et al., 2020). Health sector struggles in a nation with inadequate supply of essential medicines, insufficient healthcare personnel and further complicate access to quality care (Kagaigai et al., 2023).

Tanzania parliament in the year 2023 passed the Universal Health Insurance (UHI) bill aiming to provide healthcare coverage to 25% of the population in its first year. Despite the strategy, the health insurance demand remains low, In the year 2024, the health insurance coverage increased to 32%, whereby 8% was covered by the NHIF, 23% by CHF and 1% by private health insurance companies (Shekhigenda, 2024). The improved Community Health Fund (iCHF) increased healthcare utilisation among households and low rates of catastrophic health expenditure (CHE) compared to non-enrolled households (Shayo et al 2025).

The government has been implementing policy reforms and advocacy, and in collaboration with health organisations has subsidized insurance schemes, awareness campaigns are among strategies done by the government to increase healthcare utilisation (Ibid). Despite the strategies being implemented in Tanzania, healthcare utilisation is still low.

Many studies have been done to assess healthcare utilisation in Tanzania (Kitole, 2023; Anasel et al., 2024; Shao, 2022; Afriyie et al., 2024; Tungu, 2020; Kapologwe et al., 2020; Kagaiga et al., 2023; Purba et al., 2025; Gabrani et al., 2021; Gao et al., 2025; Pham et al., 2019; Gao et al., 2022; Cavatorta et al., 2021; Utazi et al., 2022). However, the studies done do not give a comprehensive

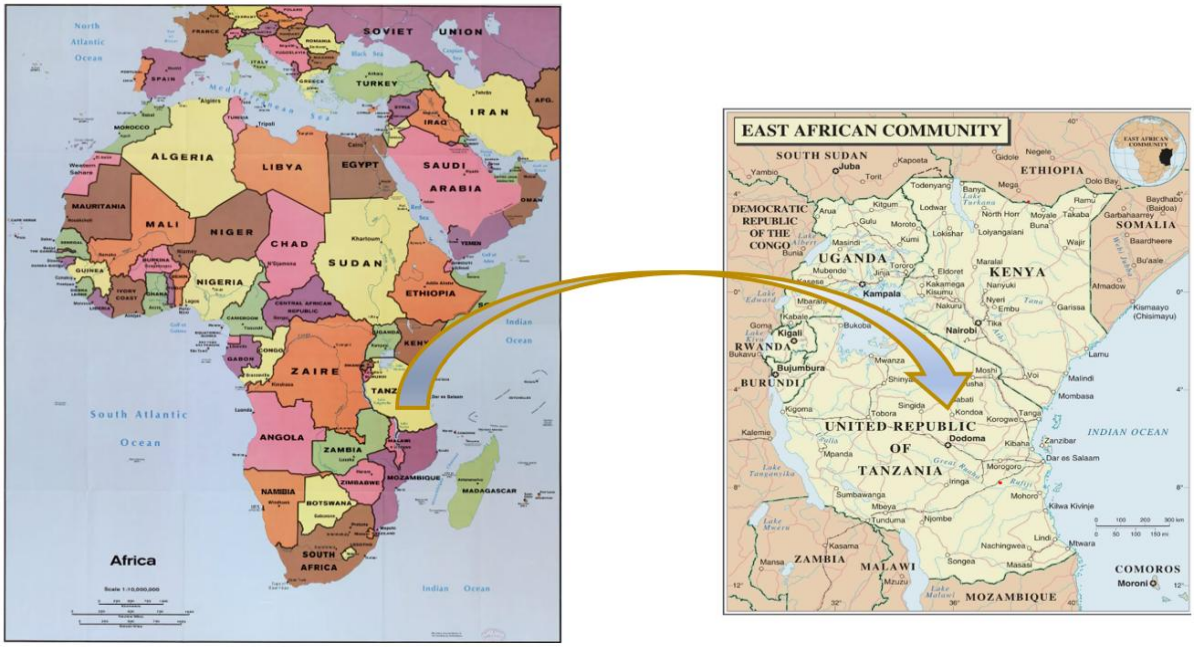
understanding of gender differences among men and women in healthcare utilisation. From this ground, the study targets to understand factors influencing gender differences in healthcare utilization among households in Tanzania.

II. Material and methods

Source of Data and Sample Size

This study applied non-experimental research design using secondary data for 2022 Tanzania Demographic and Health Survey (DHS), provided by National Bureau of Statistics (NBS) in collaboration with government and development partners. After data cleaning, a total of 2,445 households were used for data analysis. Only complete responses from household heads were considered, based on the DHS question which aimed to identify the relationship of the respondents to the household head.

Figure 1: Map showing Geographic focus of the Study from Africa to the East African Community (EAC) Region Highlighting Tanzania



Source: EAC

III. Empirical Model

Modelling of determinants of healthcare utilization among households

Binary probit model was used since outcome variable (healthcare utilization) is binary. General binary probit equation model for the determinants of healthcare utilization among households is given as;

$$P(Y = 1|X_i) = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \alpha_7 X_7 + \alpha_8 X_8 + \alpha_9 X_9 + \alpha_{10} X_{10} + \alpha_{11} X_{11} + \mu_i \quad (1)$$

Whereby,

$P(Y=1 \mid X_i)$ = probability for healthcare utilisation given the X value(s)

X_i stands for marital status, self-reported health status, education level, age, household size, residence, distance to healthcare facility, health insurance coverage, employment status, household wealth and gender respectively.

α_i stands for their slope coefficients respectively, μ_i stands for an error term (other variables influencing healthcare utilization but not captured in a model).

Under the conditions that, when

$$Y^* = \begin{cases} 1 \; if \; \alpha_0 + \alpha_i X_i + \mu_i > 0 \\ 0 \; if \; \alpha_0 + \alpha_i X_i + \mu_i \leq 0 \end{cases} \quad (2)$$

$y_i^* > 0, y_i = 1 \; if \; the \; household \; visited \; health \; facility$

$y_i^* > 0, y_i = 0 \; if \; the \; household \; not \; visited \; health \; facility$

If the indices Y and Y* are normally distributed, the probability of Y* can be computed from the standardised normal cumulative distribution function as follows:

$$P_i = P(Y = 1|X_i) = P(Y^* \leq Y) = P(Z_i \leq \alpha_0 + \alpha_i X_i) = F(\alpha_0 + \alpha_i X_i) \quad (3)$$

Where, Z = the standardised normal distribution, [$Z \sim N(0, \delta^2)$]

F = cumulative distribution function

The cumulative distribution function can be written as:

$$P_i = Prob(Y_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y_i} e^{-z^2/2} dz \quad (4)$$

Which is equal to:

$$P_i = Prob(Y_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\alpha_0 + \alpha_1 X} e^{-z^2/2} dz \quad (5)$$

Where, P_i is the probability that Y (dependent variable) =1,

Z = a standardised normal distribution

Modelling of factors influencing gender differences

In this study, probit Blinder Oaxaca (B-O) decomposition model for analysis was used to assess the factors influencing gender differences in healthcare utilization among households in Tanzania

The difference in healthcare utilization is expressed as:

$$P(\frac{y=1}{x_i}) = (P_M - P_F) \quad (6)$$

where $P\left(\frac{y=1}{x_i}\right)$denotes the probability of healthcare utilization for male

(P_M) and female (P_F), is accounted for by group differences in the predictors. Again, using the nonlinear model as a foundation, additional equations for group differences could be written as:

$y_g^* = x_g\alpha_g + \mu_g$, with $y_g = 1\ if\ y_g^* > 0$, and $y_g = 0$ otherwise, (7)

Where $\Phi(x_g\alpha_g)$ stands for cumulative distribution function (CDF) of t standard normal distribution

The average difference in predicted probabilities between groups is:

$$\Delta = [E[\Phi(X_M\alpha_M)] - E[\Phi(X_F\alpha_F)] \quad (8)$$

This equation can be decomposed to as

$$\Delta = [E[\Phi(X_M\alpha_M)] - E[\Phi(X_M\alpha_F)]] + [E[\Phi(X_M\alpha_F)] - E[\Phi(X_F\alpha_F)]] \quad (9)$$

First term (coefficient effect/ unexplained): due to differences in coefficients $(\alpha_M - \alpha_F)$

Second term (endowment effect/explained): due to differences in characteristics $(X_M - X_F)$

Whereby

X_i stands for marital status, self-reported health status, education level, age, household size, residence, distance to healthcare facility, health insurance coverage, employment status and household wealth, α_i stands for their slope coefficients respectively, $\mu_i$stands for an error term (other variables influencing healthcare utilization but not captured in a model, g represents group (male/female), F represents female group, M represents male group, P_F represents the probability of female group and P_M stands for the probability of male group.

Table 1: Variable Description and Measurement

Variable name	Variable type	Operational definition
Dependent variable		
Healthcare utilization	Dummy	1 = visited health facility last 12 months, 0 = not visited health facility last 12 months
Independent/explanatory variables		
Health insurance coverage	Dummy	1 = covered by health insurance, 0 = not covered by health insurance
Distance to healthcare facility	Continuous	Number of minutes to nearest healthcare facility
Gender	Dummy	1 = household head is a male, 0 = household head is a female
Marital status	Dummy	1= married, 0-not married
Age	Continuous	Number of years of household head
Household size	Continuous	Total number of household members
Residence	Dummy	1= household located in rural areas, 0 = household located in urban areas
Education level	Categorical	1 = primary education, 2 = secondary education, 3 = higher education, 0 = no formal education
Health status	Categorical	1 = very good health, 2 = good health, 3 = moderate health, 0 = bad health
Employment status	Categorical	1 = employed for all year, 2 = seasonally employed, 0 = employed occasionally
Household wealth	Categorical	1 = richest, 2 = rich, 3 = middle, 4 = poor, 0 = poorest

IV. Results

Household characteristics

Results in Table 2 show that 71.70% of household heads are located in rural areas, while 28.30% are in urban areas. The findings also show that most of household heads (54.48%) have primary education, 24.91% have secondary education, 19.67% have no formal education, and 0.94% have attained higher education. Similarly, most partners (61.23%) possess primary education, followed by 24.01% with secondary education, 12.07% with no formal education, and 2.70% with higher education. Furthermore, the results reveal that males head the majority of households (60.61%), whereas females head 39.39% of the 2531 households surveyed.

Table 2 results indicate that 17.14% of households surveyed were poorest, 19.35% were poorer, 21.19% had middle wealth, 22.33% were richer and 20.00% of households were richest. It was also found that, majority of households (74.48%) were married while 25.52% of households were not married. 50.18% of household heads were employed all year, 45.05% were employed seasonally

and 4.73% were occasionally employed. On the other hand, 58.20% of partners were employed all year, 37.55% were seasonally employed and 4.25% were occasionally employed.

Table 2: Household Characteristics

Variables	Attributes	Frequency	Percent (%)
Residence	Rural	1,753	71.70
	Urban	692	28.30
Total		**2,445**	**100.00**
Household head's Education level	No formal education	481	19.67
	Primary	1,332	54.48
	Secondary	609	24.91
	Higher	23	0.94
Total		**2,445**	**100.00**
Partners Education level	No formal education	295	12.07
	Primary	1,497	61.23
	Secondary	587	24.01
	Higher	66	2.70
Total		**2,445**	**100.00**
Household head' sex	Female	963	39.39
	Male	1,482	60.61
Total		**2,445**	**100.00**
Household Wealth	Poorest	419	17.14
	Poorer	473	19.35
	Middle	518	21.19
	Richer	546	22.33
	Richest	489	20.00
Total		**2,445**	**100.00**
Marital status	Not married	624	25.52
	Married	1,821	74.48
Total		**2,445**	**100.00**
Household employment status	All year	827	50.18
	Seasonal	743	45.08
	Occasional	78	4.73
Total		**2,445**	**100.00**

Partners employment status	All year	1,423	58.20
	Seasonal	918	37.55
	Occasional	104	4.25
Total		**2,445**	**100.00**
Household size	Mean=5.897, Std.Dev.=4.022, Min=2, Max=54		
Distance to healthcare facility	Mean=38.247, Std.Dev.=43.239, Min=1, Max=490		
Age of household head	Mean=38.387, Std.Dev.=10.698, Min=17, Max=95		
Age of partner	Mean=35.515, Std.Dev.=7.837, Min=17, Max=95		

Additionally, results in Table 2 reveal on average a household consists of 6 household members, household with the largest population consisting of 54 household members and the least populated household consisting of 2 household members. It was also found that on average household heads are aged 38 years, the oldest household head was aged 95 years and youngest was aged 17 years. In addition, on average partners were aged 36 years old, the oldest partner was 95 years old while the youngest partner was 17 years old. It was found that households travelled for 38 minutes on average to the healthcare facility; the longest time travelled was 490 minutes while some households resided very close at the healthcare facility only travelling for a single minute.

Econometrics Results

As per findings, households' size was significant at 1% level of significance with probability value (P<0.000), implying probability of household healthcare utilization increases with an increase in the size of members. Households with more members were significantly with high probability of healthcare utilization by 0.099. Households whose heads were primary and secondary educated had significantly high probability of healthcare utilization by 0.082 and 0.163 respectively as compared to households whose heads had informal education at the significance level of 1% (P<0.003 and 0.000). Households whose partners were primary and secondary educated had significantly high probability of healthcare utilization by 0.059 and 0.111 respectively as compared to households whose partners were informally educated at the significant levels of 10% and 1% (P<0.070 and P<0.003) respectively

Moreover, it was revealed that households reported to have very good health had significantly high probability of healthcare utilization by 0.161 than households that were reported to have bad health at the significance level of 10% (P<0.086).

It was also found that, households whose heads were more aged, had less probability of healthcare utilization by 0.148 at the significance level of 1% (P<0.003). Households whose partners were

more aged, had significantly high probability of healthcare utilization by 0.105 at the significance level of 5% (P<0.042). Households whose heads were all year and seasonally employed had significantly less probability of healthcare utilization when compared to households whose heads were occasionally employed by 0.101 and 0.112 at the significance levels of 5% (P<0.046 and 0.036) respectively.

Table 3: Determinants of healthcare utilization

	Probit regression			**Marginal Coefficient**		
Variable	**Coefficient**	**Standard error**	**p-value**	**dy/dx**	**Standard error**	**P-value**
Household size	0.267	0.065	0.000	0.099	0.024	0.000***
Distance to health facility	0.025	0.022	0.238	0.009	0.008	0.238
Household head's age	-0.398	0.136	0.003	-0.148	0.050	0.003***
Partner's age	0.283	0.139	0.042	0.105	0.052	0.042**
Household education level						
• Primary	0.220	0.073	0.003	0.082	0.027	0.003***
• Secondary	0.463	0.097	0.000	0.163	0.032	0.000***
• Higher	0.253	0.318	0.425	0.089	0.104	0.393
Household wealth						
• Poorer	-0.029	0.088	0.740	-0.011	0.033	0.740
• Middle	0.006	0.090	0.948	0.002	0.033	0.948
• Richer	-0.045	0.106	0.670	-0.017	0.040	0.671
• Richest	-0.014	0.138	0.922	-0.005	0.051	0.922
Health insurance coverage	0.156	0.131	0.234	0.056	0.046	0.219
Residence (Rural)	-0.149	0.076	0.049	-0.056	0.029	0.051*
Self-reported health status						
• Very good	0.471	0.305	0.122	0.161	0.094	0.086*
• Good	0.359	0.299	0.229	0.134	0.111	0.228
• Moderate	0.250	0.300	0.405	0.091	0.106	0.393
Marital status (Married)	0.065	0.062	0.291	0.024	0.023	0.293
Partner education level						
• Primary	0.158	0.087	0.068	0.059	0.032	0.070*
• Secondary	0.309	0.110	0.005	0.111	0.038	0.003***
• Higher	0.083	0.217	0.701	0.030	0.078	0.696
Employment status						
• All year	-0.274	0.139	0.049	-0.101	0.050	0.046**
• Seasonal	-0.297	0.141	0.035	-0.112	0.053	0.036**

Gender (Male)	-0.095	0.080	0.236	-0.035	0.030	0.234
Constant	-0.125	0.601	0.835			
Number of observations		2445				
Pseudo R squared		0.031				
Chi-square		97.960				
Prob>chi2		0.000				

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

On the other hand, results in Table 3 show that distance to healthcare facility in terms of the time the household spends when travelling to health facility, wealth of household head and health insurance coverage had no significant contribution to household healthcare utilization.

Factors influencing gender differences in healthcare utilization

As per Table 4 the predicted probability for healthcare utilization among female is 0.6789063 and 0.6180868 for male, with positive significant difference (0.0608194). This suggests uneven healthcare utilization between women and men, females having high probability to utilize healthcare than males. The gap was found influenced by differences in characteristics between males and females.

Table 4: Probit Blinder Oaxaca decomposition estimates

Variables	**Coefficient**	**Standard error**	**z-value**	**P > z**
Differential				
Predicted probability of female healthcare utilization	0.6789063	0.0150526	45.10	0.000***
Predicted probability of male healthcare utilization	0.6180868	0.0126247	48.96	0.000***
Difference	0.0608194	0.019646	3.10	0.002***
Decomposition				
Endowments	0.110	0.055	2.010	0.044**
Coefficients	0.039	0.041	0.940	0.346
Interaction	-0.087	0.065	-1.340	0.180

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

The household size was found significantly reducing the gap-based resources at 10% level (P=0.060), suggesting having large number of members in household reduces the gender gap in healthcare utilization by 0.004 units than having small number of members in household holding other factors constant.

Distance to health facility in terms of time spent travelling to the health facility was found to be statistically significant at 10% level (P=0.077) reducing the gender-based gap in healthcare

utilization, implying households spending more time travelling to health facility have less gender gap of 0.006 units than households that spend less time travelling to health facility holding other factors constant.

Household age was found statistically significant at 1% level (P=0.006) reducing the gender gap in healthcare utilization. Results imply households whose heads are more aged have a less gender gap by 0.011 units than households whose heads are less aged holding other factors constant.

Table5: Further Probit Blinder Oaxaca decomposition results for healthcare utilization

	Endowment		
Variables	**Coefficient**	**Standard error**	**P-value**
Constant	0.228	0.484	0.637
Household size	-0.004	0.002	0.060*
Distance to health facility	-0.006	0.003	0.077*
Household head's age	-0.011	0.004	0.006***
Partner's age	0.002	0.002	0.256
Household education level			
• Primary	-0.006	0.003	0.044**
• Secondary	0.042	0.012	0.000***
• Higher	-0.001	0.006	0.836
Household wealth			
• Poorer	-0.000	0.006	0.970
• Middle	-0.001	0.007	0.880
• Richer	-0.002	0.008	0.799
• Richest	0.070	0.063	0.263
Health insurance coverage	0.004	0.005	0.347
Residence(rural)	0.001	0.016	0.949
Self-reported health status			
• Very good	0.015	0.011	0.164
• Good	-0.006	0.006	0.274
• Moderate	-0.003	0.005	0.480
Marital status (Married)	0.002	0.002	0.342
Partner education level			
• Primary	-0.012	0.006	0.043**
• Secondary	0.028	0.012	0.017**
• Higher	0.001	0.010	0.918
Employment status			
• All year	-0.023	0.015	0.131
• Seasonal	0.021	0.016	0.176

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

Households whose heads had primary level of education were statistically significant have less gender-based gap resource at 5% level (P=0.044). Results show that households whose heads have primary education level have a less gender gap of 0.006 units than households whose heads have informal education. In addition to that, households whose heads had secondary level of education were statistically significant have more gender-based gap resources at 1% level (P=0.000). Households whose heads have secondary education level have a more gender gap of 0.042 units than households whose heads have informal education keeping other factors constant.

Households whose partners had primary level of education were statistically significant have less gender-based gap resources at 5% level (P=0.043). Results show that households whose heads have primary education level have a less gender gap of 0.012 units than households whose heads have informal education. In addition to that, households whose heads had secondary level of education were statistically significant have more gender-based gap resources at 5% level (P=0.017). Results show that households whose heads have secondary education level have a more gender gap of 0.028 units than households whose heads have informal education keeping other factors constant.

In addition to that, results show that the gender-based gap resources are not due to partners age, wealth of household, self-reported health status, health insurance coverage, marital status and employment status of the household.

V. Discussion

The findings show households with a larger number of members have high probability to healthcare utilization in Tanzania. Similar findings were found by different researchers (Kitole et al.,2023; Tungu et al., 2020; Kitole et al., 2022). This suggests more household size increases the probability of seeking medical care. In Tanzania where the extended families and larger household sizes are common, this reflects a higher overall demand for healthcare due to a greater number of dependents, including children and the elderly. It also emphasizes how crucial it is making health services accessible and sufficient to meet demands of large households, which may face greater health risks and challenges in managing illness.

The findings reveal contrasting effects of age on healthcare utilization in Tanzanian households. Households with older partners had higher probability of healthcare utilization, suggesting that increased age among partners may be associated with greater health needs or a higher understanding of the significance for obtaining healthcare. Various researchers came out with similar findings (Kitole et al., 2023; Tungu et al., 2020; Loef et al., 2021). On the other hand, households with older

heads had lower probability of healthcare utilization, which may reflect barriers such as traditional beliefs, reduced mobility and limited access among elderly heads of households. This suggests that while ageing can increase health needs, it may also be associated with reduced healthcare utilization depending on the role and influence of the individual within the household. The insights point out the need for age sensitive health interventions and improved outreach to elder household heads who may be underserved despite potential health vulnerabilities.

The findings indicate that education plays a significant role in influencing healthcare utilization among households in Tanzania. Households whose heads and partners had primary or secondary education were with higher probability of using healthcare in contrast to with informal education. Similar findings were found by Kitole et al., (2023) and Loef et al., 2021The increased probability of healthcare utilization among both household heads and partners with secondary education level reflects the importance of education in healthcare utilization. This suggests the importance of promoting access to education as a long-term strategy to improve public health outcomes and encourage more consistent use of healthcare services.

The findings show that households whose heads reported having very good health had high probability of healthcare utilization compared to those reporting poor health. This indicates that households who already engage regularly with healthcare services are more likely to maintain better health through preventive care, early diagnosis and treatment. Various researchers revealed the same (Kagaiga et al., 2023; Utazi et al., 2022). In Tanzania poor health is related to financial barriers which limit access to healthcare and reduce seeking care. The insight from this study suggests the need to address the barriers to ensure that households with poorer health conditions are not left behind in accessing necessary healthcare services.

The findings indicate that households whose heads were all year or seasonally employed, had lower probability of healthcare utilization than whose heads were occasionally employed. In contrast, occasionally employed heads of households may have more flexibility and time to seek medical attention when needed. Similar findings were found by different researchers (Utazi et al., 2022; Kalindi et al., 2023). This suggests that households with more time bound work commitments may face challenges in accessing healthcare due to limited time availability. The results reveal the demand for policies that promote workplace health awareness and flexible healthcare access options for regularly employed households.

The findings suggests that households with more members tend to show slightly smaller differences between men and women in healthcare utilization. Various researchers revealed the same (Cavatorta et al., 2025; Gao et al., 2022; Pham et al., 2019). This means that in larger families,

healthcare resources may be distributed more evenly across genders, potentially due to shared responsibilities, collective decision making and cultural norms that encourage equal care within the family unit. The results give insights into the role of household composition in shaping gender dynamics in healthcare utilization.

The study suggests that households who spend more time traveling to health facilities tend to show slightly smaller differences between men and women in accessing healthcare services. When reaching healthcare is more time consuming, families may prioritize care based on need rather than gender, leading to more equal use of healthcare resources. Similar findings were revealed by various studies (Cavatorta et al., 2025; Gabrani et al., 2021). The findings imply that longer travel times may shift household decision making dynamics. This finding underscores the complex role of geographic barriers in shaping gender equity and suggests that improving physical access to health facilities could influence not just overall utilization, but also how equitably care is distributed within households.

Results suggest more aged heads of households tending to show a smaller gap between men and women in healthcare utilization. This finding underlines the findings found by various researchers (Gao et al, 2025; Gabrani et al., 2021). As households' heads grow older, they may become more experienced and more balanced in how they allocate healthcare resources with the family, leading to more equal treatment of male and female members. This highlights the influence of household age on gender dynamics in healthcare utilization. The findings suggest that older household heads may adopt more inclusive decision-making practices which contribute to reducing the gender disparities in health outcomes.

The study reveals a complex relationship between education levels of household heads and partners and the gender gap in healthcare utilization. Households whose head and partner have primary level of education tend to show more equal access to healthcare between men and women suggesting basic education may promote fairness and awareness in resources allocation. Surprisingly, households whose head and partner had attained secondary education showed wider gender disparities in healthcare utilization compared to those with informal education. Similar findings were revealed by different researchers (Nyamande et al., 2020; Purba, et al., 2025). While basic education appears to support gender equality in health decisions, higher education does not necessarily lead to more equitable outcomes. The findings highlight that the impact of education on gender equity is not linear and may be influenced by broader social norms, expectations or power dynamics that accompany different levels of education attainment in Tanzania society.

Implications for policy and practice

Practically, the study informs a need for policies to focus on improving access to education for both men and women. Community health education campaigns should also be strengthened to raise awareness about the importance of regular medical checkups and early treatment particularly targeting less educated households.

The results also indicate older household heads, rural residence, all year and seasonally employed households are associated with lower use of healthcare services. This highlights the need for policies that promote workplace health awareness and flexible healthcare access options for regularly employed households and for targeted interventions to support older adults, people living in rural areas and those with tight working schedules.

Increasing and improving rural healthcare infrastructure, reducing the cost of healthcare and offering flexible service hours could help improve healthcare utilisation among men and women in Tanzania. In addition, introducing mobile health services and increasing community-based outreach could ensure that underserved groups are no left behind in Tanzania's progress towards universal health coverage.

In addition, the study informs public and policy makers to address this imbalance, health policies should include gender sensitive strategies that encourage men to engage more with health services. Public health campaigns should be designed to target men, promote positive attitudes towards regular health checkups. Involving male community leaders and role models in health promotion activities may help change attitudes and improve men's health seeking behavior.

The findings also suggest that having more household members, travelling longer distances to reach health facilities and having primary education are linked to a smaller gender gap. In contrast households where heads or partners have secondary education showed a large gender gap. This indicates that education alone does not guarantee equal healthcare use between men and women. Therefore, educational programs at all levels should include health and gender equality topics to promote balanced healthcare utilization, hand in hand with investment in local health facilities and improved transport services can make healthcare more accessible to all, helping to reduce the gender gap.

Limitations of the Study

The study employed data from the Tanzania Demographic and Health Survey of the year 2022 and thus limiting the analysis to the variables already collected in the data set. Other important variables which might influence healthcare utilisation such as cultural beliefs and quality of healthcare services provided were then not captured by the data set. The cross-sectional nature of the data does not allow analysis to trace healthcare utilisation in the nation across time. It only

enabled the researcher to study healthcare utilisation at one point in time. The use of Binary Probit model and Probit Oaxaca Decomposition models, while suitable for the analysis of the study, relies on assumptions which may not fully capture complex social and economic dynamics.

Despite the limitations, the data used provided necessary information on the analysis of healthcare utilisation among households in Tanzania, focusing on its variation, and gender differences and hence making the findings of this study reliable.

VI. Conclusion

The study conclusively shows healthcare utilization being contributed by number of household members, age for household head and partner, education level of household head and partner, place of residence and employment status. The findings show health knowledge and education as important factors in motivating people to seek healthcare. However, lower utilization was found among older household heads, those in rural areas, and those with full time and seasonal employment, likely due to time, mobility or access constraints.

In addition to that the study concludes gender gap in healthcare utilization; women found with higher healthcare utilization than men. The gender gap in healthcare utilization is contributed by the number of members in the household, time travelled to health facility and education level in terms of resource based. The study highlights education alone not sufficient to ensure equal access in healthcare, suggesting a need for focused, inclusive health policies that consider social factors, gender dynamics and family structure into consideration to ensure fair access to healthcare for every citizen.

Statement and Declarations

Transparency Statement: The authors affirm that this manuscript is an honest, accurate, and transparent account of the study being reported. No important aspects of the study have been omitted, and any discrepancies from the study as originally planned have been explained where relevant.

Funding: No funds were received to undertake this study.

Declaration statement: The study, conducted in 2025, used anonymized data from the 2022 Tanzania Demographic and Health Survey provided by National Bureau of Statistics, conducted in accordance with national ethical and research standards governing data collection involving human participants with informed consent obtained from all participants.

Ethical approval-not applicable

Consent to participate-not applicable

Consent to publish-not applicable

Consent Statement: Not applicable. The manuscript does not contain any individual person's data, images, or identifiable information requiring consent for publication

Data availability Statement: The primary data used in this study are publicly available the 2022 Tanzania Demographic and Health Survey on https://microdata.nbs.go.tz/index.php/catalog/38. The final processed dataset generated and analysed during the current study is available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest.

REFERENCES

Afriyie, D. O., Loo, P. S., Kuwawenaruwa, A., Kassimu, T., Fink, G., Tediosi, F., &Mtenga, S. (2024). Understanding the role of the Tanzania national health insurance fund in improving service coverage and quality of care. *Social Science & Medicine*, 347, 116714.

Allen, J., Cotter-Roberts, A., Darlington, O., Dyakova, M., Masters, R., & Munford, L. (2022). Understanding health inequalities in Wales using the Blinder-Oaxaca decomposition method. *Frontiers in Public Health*, 10, 1056885.

Al-Worafi, Y. M. (2023). Healthcare access and equitable access services in developing countries. In Handbook of medical and health sciences in developing countries: education, practice, and research (pp. 1-24). Cham: *Springer International Publishing*.

Amani, P. J., Tungu, M., Hurtig, A. K., Kiwara, A. D., Frumence, G., & San Sebastián, M. (2020). Responsiveness of healthcare services towards the elderly in Tanzania: does health insurance make a difference? A cross-sectional study. *International journal for equity in health*, 19, 1-9.

Anasel, M. G., Komba, C., Kacholi, G., Genda, E. L., Chamwali, L., Mwakasangula, E., ... & Kitole, F. A. (2024). The effects of health insurance on maternal healthcare utilisation in Tanzania. *Global Social Welfare*, 1-15.

Asi, Y., & Williams, C. (2020). A woman's (unpaid) work: Global perspectives on gender, healthcare, and caregiving. In Three Facets of Public Health and Paths to Improvements (pp. 261-294). *Academic Press*.

Audi, Z., Hagembe, J., McAndrew, E., Crissman, K., Owino, E., Thoumi, A., & Odero, P. (2020). White paper: *innovations to Advance Universal Health Coverage in Africa.*

Castillo, C. H. M., Garrafa, V., Cunha, T., & Hellmann, F. (2017). Access to healthcare as a human right in international policy: critical reflections and contemporary challenges. *Ciencia &saudecoletiva*, 22, 2151-2160.

Cavatorta, E., Janssens, W., & Mesnard, A. (2025). Gendered Barriers to Formal Health-Care Utilization: Modeling Health-Care Demand in a Low-Resource Setting. *Economic Development and Cultural Change*, *73*(2), 607-649.

Das, M., Angeli, F., Krumeich, A. J., & Van Schayck, O. C. (2018). The gendered experience with respect to health-seeking behaviour in an urban slum of Kolkata, India. *International journal for equity in health*, 17, 1-14.

Dos Santos, J. L. G., Stein Messetti, P. A., Adami, F., Bezerra, I. M. P., Maia, P. C. G. S., Tristan-Cheever, E., & Abreu, L. C. D. (2021). Collision of fundamental human rights and the

right to health access during the novel coronavirus pandemic. *Frontiers in public health*, 8, 570243.

Eley, N. T., Namey, E., McKenna, K., Johnson, A. C., & Guest, G. (2019). Beyond the individual: Social and cultural influences on the health-seeking behaviors of African American men. *American journal of men's health*, 13(1), 1557988319829953.

Filip, R., Gheorghita Puscaselu, R., Anchidin-Norocel, L., Dimian, M., & Savage, W. K. (2022). Global challenges to public healthcare systems during the COVID-19 pandemic: a review of pandemic measures and problems. *Journal of personalized medicine*, 12(8), 1295.1-13.

Frazier, T. L., Lopez, P. M., Islam, N., Wilson, A., Earle, K., Duliepre, N., ... & Thorpe, L. E. (2023). Addressing financial barriers to healthcare among people who are low-income and insured in New York City, 2014–2017. *Journal of community health*, 48(2), 353-366.

Gabrani, J., Schindler, C., & Wyss, K. (2021). Health seeking behavior among adults and elderly with chronic health condition (s) in Albania. *Frontiers in Public Health*, *9*, 616014.

Gabrani, J., Schindler, C., & Wyss, K. (2021). Health seeking behavior among adults and elderly with chronic health condition (s) in Albania. *Frontiers in Public Health*, *9*, 616014.

Gao, H., Li, R., Shen, J., & Yang, H. (2025). Children's gender and parents' long-term care arrangements: evidence from China. *Applied Economics*, *57*(13), 1510-1525.

Gao, H., Li, R., Shen, J., & Yang, H. (2025). Children's gender and parents' long-term care arrangements: evidence from China. *Applied Economics*, *57*(13), 1510-1525.

Gao, Q., Prina, A. M., Ma, Y., Aceituno, D., &Mayston, R. (2022). Inequalities in older age and primary health care utilization in low-and middle-income countries: a systematic review. *International Journal of Health Services*, *52*(1), 99-114.

Gordon, T., Booysen, F., &Mbonigaba, J. (2020). Socio-economic inequalities in the multiple dimensions of access to healthcare: the case of South Africa. *BMC Public Health*, *20*, 1-13.

Gough, B., & Novikova, I. (2020). Mental health, men and culture: how do sociocultural constructions of masculinities relate to men's mental health help-seeking behaviour in the WHO European Region?. *WHO*.

Huang, W. L., Liao, S. L., Huang, H. L., Tsai, P. J., Huang, H. H., Lu, C. Y., & Ho, W. S. (2024). Impact of post-COVID-19 changes in outpatient chronic patients' healthcare-seeking behaviors on medical utilisation and health outcomes. *Health Economics Review*, 14(1), 71.

Jakovljevic, M., Chang, H., Pan, J., Guo, C., Hui, J., Hu, H., ... & Shi, L. (2023). Successes and challenges of China's healthcare reform: a four-decade perspective spanning 1985—2023. *Cost Effectiveness and Resource Allocation*, 21(1), 59.

Kagaigai, A., Anaeli, A., Grepperud, S., & Mori, A. T. (2023). Healthcare utilisation and catastrophic health expenditure in rural Tanzania: does voluntary health insurance matter*? BMC Public Health,* 23(1), 1567.

Kagaigai, A., Anaeli, A., Grepperud, S., & Mori, A. T. (2023). Healthcare utilisation and catastrophic health expenditure in rural Tanzania: does voluntary health insurance matter*? BMC Public Health,* 23(1), 1567.

Kaijage, A., Mgale, Y. J., &Dimoso, P. (2023). Exploring the Effects of Out-of-Pocket Payments on Healthcare Utilisation in Rural and Urban Tanzania: A Gender Perspective. *Open Journal of Social Sciences*, 11(6), 180-202.

Kalindi, A. M., Houle, B., Smyth, B. M., &Chisumpa, V. H. (2023). Gender inequities in women's access to maternal healthcare utilisation in Zambia: a qualitative analysis. *BMC Pregnancy and Childbirth,* 23(1), 755.

Kalindi, A. M., Houle, B., Smyth, B. M., &Chisumpa, V. H. (2023). Gender inequities in women's access to maternal healthcare utilisation in Zambia: a qualitative analysis. *BMC Pregnancy and Childbirth,* 23(1), 755.

Kapologwe, N. A., Meara, J. G., Kengia, J. T., Sonda, Y., Gwajima, D., Alidina, S., & Kalolo, A. (2020). Development and upgrading of public primary healthcare facilities with essential surgical services infrastructure: a strategy towards achieving universal health coverage in Tanzania. *BMC health services research*, 20, 1-14.

Katoue, M. G., Cerda, A. A., García, L. Y., & Jakovljevic, M. (2022). Healthcare system development in the Middle East and North Africa region: challenges, endeavors and prospective opportunities. *Frontiers in public health*, 10, 1045739.

Kitole, F. A., Lihawa, R. M., &Mkuna, E. (2022). Analysis on the equity differential on household healthcare financing in developing countries: empirical evidence from Tanzania, East Africa. *Health Economics Review*, 12(1), 55.

Kitole, F.A., Lihawa R.M., Nsindagi, T.B., & Tibamanya, F.Y. (2023) Does health insurance solve healthcare utilisation puzzle in Tanzania? *Public Health*, 219, 91-101.

Loef, B., Meulman, I., Herber, G. C. M., Kommer, G. J., Koopmanschap, M. A., Kunst, A. E., ... & Uiters, E. (2021). Socioeconomic differences in healthcare expenditure and utilization in the Netherlands. *BMC Health Services Research*, *21*(1), 643.

Luyckx, V. A., Al-Aly, Z., Bello, A. K., Bellorin-Font, E., Carlini, R. G., Fabian, J. & Stanifer, J. (2021). Sustainable development goals relevant to kidney health: an update on progress. *Nature Reviews Nephrology*, 17(1), 15-32.

Mbunge, E., Batani, J., Gaobotse, G., & Muchemwa, B. (2022). Virtual healthcare services and digital health technologies deployed during coronavirus disease 2019 (COVID-19) pandemic in South Africa: a systematic review. *Global health journal*, 6(2), 102-113.

Ministry of Health [MoH], Tanzania. (2023). Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS) 2022: Key indicators report. *https://dhsprogram.com/pubs/pdf/PR143/PR143.pdf*

Mndolwa, F. D., & Alhassan, A. L. (2020). Gender disparities in financial inclusion: Insights from Tanzania. *African Development Review*, 32(4), 578-590.

Nikoloski, Z., Wannis, H., Menchini, L., & Chatterjee, A. (2021). Primary healthcare and child and maternal health in the Middle East and North Africa (MENA): A retrospective analysis of 29 national survey data from 13 countries. *SSM-Population Health*, 13, 100727.

Nuhu, S., Mpambije, C. J., &Ngussa, K. (2020). Challenges in health service delivery under public-private partnership in Tanzania: stakeholders' views from Dar es Salaam region. *BMC health services research*, 20, 1-12.

Nyamande, F. N., Mosquera, P. A., San Sebastián, M., & Gustafsson, P. E. (2020). Intersectional equity in health care: assessing complex inequities in primary and secondary care utilization by gender and education in northern Sweden. *International Journal for Equity in Health*, *19*(1), 159.

Pham, T., Nguyen, N. T. T., ChieuTo, S. B., Pham, T. L., Nguyen, T. X., Nguyen, H. T. T., ... & Vu, H. T. T. (2019). Gender differences in quality of life and health services utilization among elderly people in rural Vietnam. *International journal of environmental research and public health*, *16*(1), 69.

Purba, H. J., Rachmawati, R. R., Irawan, A. R., Rola-Rubzen, M. F., Sudaryanto, T., Erwidodo, E., ... &Yaumidin, U. K. (2025). Linkages Between Gender and Rural Transformation in Indonesia. *Asia & the Pacific Policy Studies*, *12*(2), e70027.

Purba, H. J., Rachmawati, R. R., Irawan, A. R., Rola-Rubzen, M. F., Sudaryanto, T., Erwidodo, E., ... &Yaumidin, U. K. (2025). Linkages Between Gender and Rural Transformation in Indonesia. *Asia & the Pacific Policy Studies*, *12*(2), e70027.

Rafiq, M. Y., Wheatley, H., Mushi, H. P., & Baynes, C. (2019). Who are CHWs? An ethnographic study of the multiple identities of community health workers in three rural Districts in Tanzania. *BMC health services research*, 19, 1-15.

Ravindran, T. S., & Govender, V. (2020). Sexual and reproductive health services in universal health coverage: a review of recent evidence from low-and middle-income countries. *Sexual and reproductive health matters*, 28(2), 1779632.

Sanders, D. (2023). The struggle for health: medicine and the politics of underdevelopment. *Oxford University Press.*

Seidu, A. A., Darteh, E. K. M., Agbaglo, E., Dadzie, L. K., Ahinkorah, B. O., Ameyaw, E. K., ... & Yaya, S. (2020). Barriers to accessing healthcare among women in Ghana: a multilevel modelling. *BMC public health*, 20, 1-12.

Shao, G. M. (2022). Factors Influencing Utilisation of Free Maternal Healthcare Services in Tanzania *(Doctoral dissertation, Moshi Co-operative University).*

Shao, G. M. (2022). Factors Influencing Utilisation of Free Maternal Healthcare Services in Tanzania *(Doctoral dissertation, Moshi Co-operative University).*

Shayo, F., Zaccheus, G. G., Sakita, F., Hernandes, T. R., Vissoci, J. R. N., Gordee, A., ... & Joiner, A. P. (2025). Emergency care knowledge, utilisation, and barriers in Northern Tanzania: A community-based survey. *PLOS Global Public Health*, 5(1), e0004032.

Shekhigenda, L. (2024, December 23). 2024: A historic year in TZ health sector. Daily News. Retrieved from *https://dailynews.co.tz/2024-a-historic-year-in-tz-health-sector/*

Starrs, A. M., Ezeh, A. C., Barker, G., Basu, A., Bertrand, J. T., Blum, R., ... & Ashford, L. S. (2018). Accelerate progress—sexual and reproductive health and rights for all: *report of the Guttmacher–Lancet Commission. The lancet*, 391(10140), 2642-2692.

Tungu, M., Amani, P. J., Hurtig, A. K., Dennis Kiwara, A., Mwangu, M., Lindholm, L., & San Sebastiån, M. (2020). Does health insurance contribute to improved utilisation of healthcare services for the elderly in rural Tanzania? A cross-sectional study. *Global Health Action*, 13(1), 1841962.

Utazi, C. E., Pannell, O., Aheto, J. M., Wigley, A., Tejedor-Garavito, N., Wunderlich, J., ... & Tatem, A. J. (2022). Assessing the characteristics of un-and under-vaccinated children in low-and middle-income countries: A multi-level cross-sectional study. *PLOS Global Public Health*, *2*(4), e0000244.

Utazi, C. E., Pannell, O., Aheto, J. M., Wigley, A., Tejedor-Garavito, N., Wunderlich, J., ... & Tatem, A. J. (2022). Assessing the characteristics of un-and under-vaccinated children in low-and middle-income countries: A multi-level cross-sectional study. *PLOS Global Public Health*, *2*(4), e0000244.

Verulava, T. (2021). Access to Healthcare as a Fundamental Right or Privilege?. *Siriraj medical journal*, 73(10), 721-726.

Wongnaah, F. G., Osborne, A., Duodu, P. A., Seidu, A. A., & Ahinkorah, B. O. (2025). Barriers to healthcare services utilisation among women in Ghana: evidence from the 2022 Ghana Demographic and Health Survey. *BMC Health Services Research*, 25(1), 305.

WB. (2022). Tanzania health sector public expenditure review: Improving efficiency and equity. *https://www.worldbank.org/en/country/tanzania/publication/tanzania-health-sector-public-expenditure-review*

WHO. (2024). Global oral health status report: towards universal health coverage for oral health by 2030. *World Health Organization*.