Socioeconomic Determinants of Maternal and Child Healthcare Utilization and Infant Survival: A Case Study of Kijumo Village, Uganda

Tambwe Patrick Rodrigue, Nakajiri Somaiya and Asha Abdirahman Sheik

Department of Public Health School of Allied Health Sciences, Kampala International University Uganda

ABSTRACT

This study examines the socioeconomic determinants of maternal and child healthcare utilization and its impact on infant survival in Kijumo Village, Uganda. Through a survey of 70 mothers, data was collected on demographic characteristics, healthcare service utilization, and infant survival. Regression analyses were conducted to explore the relationship between socioeconomic factors, healthcare utilization, and infant survival. Results indicate a significant association between maternal education, household wealth, and infant survival. Moreover, healthcare service utilization was influenced by factors such as distance to healthcare centers and economic constraints. The findings underscore the need for targeted interventions to improve healthcare access and utilization in underserved communities like Kijumo Village.
Keywords: Maternal and child healthcare, healthcare utilization, socioeconomic determinants and infant survival

INTRODUCTION

Maternal and child healthcare services are the cornerstone of public health initiatives worldwide, representing a critical aspect of healthcare delivery aimed at safeguarding the health and well-being of mothers and infants [1-3]. These services encompass a broad spectrum of interventions, including antenatal care, skilled delivery assistance, postnatal care, and child vaccination programs, all designed to mitigate the risks associated with pregnancy, childbirth, and early childhood development [4-7]. Despite significant advancements in maternal and child health over the past decades, substantial disparities persist in access to and utilization of these essential services, particularly in resource-constrained settings characterized by socioeconomic vulnerabilities [8-11]. In many low- and middle-income countries, including Uganda, where Kijumo Village is located, maternal and infant mortality rates remain unacceptably high, reflecting persistent challenges in healthcare access and utilization [12-14]. These challenges are often rooted in a complex interplay of socioeconomic factors that influence healthcare-seeking behaviors, healthcare infrastructure, and health outcomes [15-16]. Among these factors, maternal education, household wealth, geographical accessibility to healthcare facilities, cultural beliefs, and societal norms play pivotal roles in shaping individuals' perceptions of healthcare, their ability to access services, and ultimately, their health outcomes [17-20]. In Kijumo Village, Uganda, a rural community characterized by limited resources and infrastructure, accessing timely and quality maternal and child healthcare services poses significant challenges for many residents [21-24]. Limited financial resources, inadequate transportation infrastructure, and cultural norms that prioritize traditional healing practices may deter mothers from seeking essential healthcare services during pregnancy, childbirth, and the postnatal period [25-26]. Consequently, preventable maternal and infant deaths continue to occur, highlighting the urgent need for targeted interventions to address existing disparities and improve health outcomes in the community [27-30]. Understanding the socioeconomic determinants of maternal and child healthcare utilization is paramount for designing effective public health interventions tailored to the specific needs of underserved communities like Kijumo Village [30-34]. By identifying key barriers to healthcare access and utilization, policymakers, healthcare providers, and community stakeholders can develop evidence-based strategies to enhance service delivery, increase healthcare utilization rates, and ultimately reduce

maternal and infant mortality rates [35-38]. This study aims to investigate the intricate relationship between demographic characteristics, healthcare utilization patterns, and infant survival outcomes in Kijumo Village, Uganda, with the goal of informing comprehensive interventions to improve maternal and child health outcomes in the community. Through rigorous data analysis and interpretation, this research seeks to contribute valuable insights to the broader discourse on maternal and child healthcare in resource-constrained settings and pave the way for sustainable improvements in health equity and well-being.

MATERIALS AND METHODS

A cross-sectional survey was conducted among 70 mothers in Kijumo Village, collecting data on socio-demographic characteristics, healthcare utilization, and infant survival. Utilization of maternal and child healthcare services was assessed based on variables such as place of delivery, vaccination, antenatal care visits, and postnatal care attendance. Cox regression analyses were performed to explore the relationship between socioeconomic factors, healthcare utilization, and infant survival.

Table 1: Percentage distribution of respondents by their socio-economic and demographic characteristics

VARIABLES	FREQUENCY	%
age of respondents(in years		
<20 years	7	10.00
20-24 years	6	8.57
25-29 years	21	30.00
>30 years	36	51.43
Mother's age at first birth		
<20 years	40	57.14
20-24 years	29	41.43
25-29 years	1	1.43
>30 years	0	0
Mother's level of educational		
Primary/ no formal education	61	87.14
Secondary	8	11.43
Tertiary	1	1.43
Partner's level of education		
Primary/ no formal education	60	85.71
Secondary	10	14.29
Tertiary	0	0
Mother's marital status		
Single	8	11.43
Married	34	48.57
Divorced/ separated	13	18.57
Widow	15	21.43
Mother's employment status		
Employed	23	32.86
Unemployed	17	24.29
Farmer	30	42.86
Religion affiliation		
Christianity	28	40.00
Islam	42	60.00

Others	0	0
Household wealth index		
Poor	0	0
Poorer	23	32.86
Middle	47	67.14
Rich	0	0
Tribe		
Muganda	8	11.43
Munyankole	53	75.71
Munyoro	8	11.43
Musoga	0	0
Other	1	1.43
Sleeping under net		
Yes	61	87.14
No	9	12.86
Having net		
Yes	60	85.71
No	10	14.29
Parity (children ever born)		
1 birth	8	11.43
2 births	15	21.43
3 and more births	47	67.14
Child survival status		
Child died at infant	13	18.57
Child died before age of 5	18	25.71
Child survived death at infant	39	55.71
TOTAL	**70**	**100.00**

The table above presents the socio-economic and demographic characteristics of mothers in the study. Study as presented in Table 1 show that 51.43 % of the mothers were at least 30 years while 10% were less than 20 years; Also, the results clearly show that almost 6 (57.14%) out of every ten mothers got married before age 20. Relatively, approximately an eighth (87.14%) either had a primary school education or had no formal education; while an insignificant proportion (1.43%) of the mothers had a post-secondary school education. The results on the level of education attained by partners of these women reveal that a eights (85.71%) of these women's husbands had at least a primary school education or no formal education and the minority (14.29%) of them had just a secondary school education. The results also show that 67.15.3% of the mothers were not gainfully employed compared with 32.86% that were gainfully employed. The level of household wealth index was middle, as 67.14% of the mothers were from households that fell within the middle wealth index and 32.86% of these mothers were from poorer household. The results evidently show that around eight out of ten (87.14 and 85.71%) of the mothers were/had sleeping under net. Mothers reported to have given birth to 3 child and more in the past five years preceding the survey, while 21.43% reported to have had two live births within the same time period. Relatively, 44.28% of the children ever born by these mothers survived death at infant, while 55.71% died before they reached their fifth birthday.

Research Question I:

What extent is maternal and child healthcare facilities utilized among mothers in KIJUMO VILLAGE?

Table 2: Percentage distribution of respondents by their utilization of maternal-child health care services

VARIABLES	FREQUENCY	%
Where Initial Treatment Were Sought		
Traditional healer/herbalist	5	7.14
Patent medicine dealer	32	45.71
Health center	30	42.86
Hospital/clinics	3	4.29
Others	0	0
Place of Delivery		
Home	8	11.43
Public health center	37	52.86
Private hospital/clinic	25	35.71
Distance to Healthcare Centre		
Too far	1	1.43
Far	69	98.57
Near	0	0
Visit to healthcare center		
Mother visited health care center in the last 2 weeks	18	25.71
Mother didn't visit healthcare center in the last 2 weeks	49	70.00
Missing	3	4.29
Vaccination		
Child received vaccine	57	81.43
Child didn't receive vaccine	13	18.57
Don't know/missing	0	0
Timing of first antenatal care		
<3 months	29	41.43
3-5 months	26	37.14
6 months and above	8	11.43
Don't know	5	7.14
Missing	2	2.86
Postnatal care attendant		
Skilled delivery attendant	9	12.86
Unskilled delivery attendant	59	84.29
Missing	2	2.86
Number of antenatal care visit		
Inadequate (0-3 visits)	21	30.00
Adequate (at least 4 visits)	49	70.00

Meanwhile, the results on maternal and child healthcare services utilization as presented in Table 2 show that 11.43% of the mothers had their babies delivered at home and others delivered at health center (35.71%) and hospital (52.86%). Moreover, health center were sought initially at 92.86% Also, three- quarter (70.0%) of the mothers did not visit medical healthcare centers, while 98.57% of the mothers identified the far distance to healthcare center as a factor limiting their accessibility to healthcare services for themselves and their under-five children. Nonetheless, 100% of the mothers acknowledged that their children were taken for vaccination. Likewise, four (84.29%) out of every five of the mothers did not take their children for postnatal healthcare services. On the

other hand, 12.86% of the mothers sought for postnatal care with skilled delivery attendants. The results further show that 70% of the mothers sought adequately antennal care services.

Research Question II:

Does the utilization of maternal and child healthcare services by mothers help to reduce infant death?

Table 3: Cox Regression Showing the Effects of Mother's Socio-economic and demographic Characteristics on Infant Survival

Variables	Coefficient	Std. Err.	P>|t|	[95% Conf. Interval]
Age of respondents	-0.1390793	0.2580794	0.592	-0.6540688_0.3759101
Mother's age at first birth	0.0341098	0.0789215	0.049	-0.1233756_0.1915953
Mother's level of educational	-0.4864865	0.1296523	0.000	-0.7452036_ -0.2277694
Partner's level of education	-0.25	0.1552591	0.112	-0.5598147_0.0598147
Mother's marital status	0.0393701	0.0579232	0.499	-0.0762138 _0.1549539
Mother's employment status	0.0637658	0.0409612	0.124	-0.017971_0.1455025
Religion affiliation	-0.0119048	0.1129846	0.916	-0.237362_0.2135525
Household wealth index	-0.0823312	0.1174307	0.048	-0.3166604_0.1519981
Tribe	0.1430213	0.0912325	0.122	-0.0390304_0.3250729
Sleeping under net	0.0856102	0.1650497	0.606	-0.2437414_0.4149618
Having net	0.1	0.1577259	0.528	-0.2147371_0.4147371
Parity (children ever born)	-0.0528124	0.0800364	0.512	-0.2125226_0.1068978

The bivariate analysis of the mother's socio-economic and demographic characteristics on infant survival show how only mother's level education, mother's age at first birth and household wealth index has significant impact on child survival.

Table 4: Cox Regression Showing the Effects of Maternal and Child Healthcare services Utilization on Infant Survival

Variables	coefficient	Std. Err.	P>|t|	[95% Conf. Interval]
Where initial treatment were sought	–0.2307692	0.2131102	0.043	–0.6560239_0.1944855
Place of Delivery	–0.0792551	0.0800644	0.032	–0.2390212_0.080511
Distance to Healthcare Centre	–0.1884058	0.465921	0.687	–1.118137_0.7413252
Visit to healthcare center	–0.0441767	0.1096873	0.688	–0.2630543_0.1747009
Vaccination	–0.0553306	0.1421891	0.698	–0.3390646_0.2284033
Postnatal care attendant	–0.1262136	0.1434942	0.038	–0.4125517_0.1601245
Timing of first antenatal care	–0.0526316	0.0532249	0.326	–0.1588402_0.0535771
Number of antenatal care visit	0.0068027	0.1207927	0.955	–0.2342353_0.2478408

The cox regression analysis was conducted to explore the relationship between maternal and child healthcare services utilization and the infant survival. The result is presented in Table 4. The outcomes of the study showing the effect of mother's in seeking for initial treatment, the choice of place delivery and the postnatal care attendant on child dying before its first year birthday reveal that there is a correlation between the infant survival and the above cited variables.

Table 5: Showing the Interactional Effects of Mother's Socio-economic and demographic Characteristics and Maternal and Child Healthcare Utilization on Infant Survival

Child survival status	Coef.	Std. Err.	P>t	[95% Conf.	Interval]
Age of respondents	–.0648987	.1366023	0.637	–.3394112	.2096138
Mothers age at first birth	.1336424	.0919509	0.152	–.0511398	.3184246
Mothers education	–.4209295	.1930923	0.034	–.8089631	–.0328959
Partner's education	.0628582	.2124613	0.769	–.3640988	.4898152
Mothers marital status	.0948835	.0867122	0.279	–.0793711	.2691381
Mothers employment	.0458402	.0604901	0.452	–.0757193	.1673997
religion	–.1033586	.1673887	0.540	–.4397388	.2330216
Household wealth	–.1586166	.2341713	0.501	–.6292015	.3119682
tribe	.1495243	.1151284	0.200	–.0818349	.3808834
Sleeping under net	–.3292537	.5660504	0.563	–1.466775	.8082671
Having a net	.3684986	.5387139	0.497	–.7140876	1.451085
parity	.0856716	.1727824	0.622	–.2615476	.4328908
Initial treatment	–.0528824	.0932681	0.573	–.2403116	.1345469
Place of delivery	.0492612	.1198904	0.683	–.1916677	.29019
Distance to health center	–.1613621	.568168	0.778	–1.303139	.9804142
Visit to health center	–.0595682	.1556636	0.704	–.3723859	.2532494
vaccination	–.0193039	.1547739	0.901	–.3303337	.2917258
timingof1stanc	–.0842588	.0993203	0.400	–.2838504	.1153327
PNC	–.1522922	.2048231	0.461	–.5638996	.2593152
Number of ANC	.1695403	.1893124	0.375	–.2108972	.5499778

Multivariate Analyses

The cox regression analysis was conducted to explore the relationship between maternal and child healthcare services utilization and mothers' socio-economic and demographic characteristics to predict the incidence rate of infant mortality. The result is presented in Table 5. The outcomes of the study showing the effect of mother's socio-economic and demographic characteristics on child dying before its first year birthday reveal that only mother's level education impacted significantly the infant survival while the differentials mother's age at marriage, household wealth index, distance to health care, visit to health center and place of delivery were controlled.

RESULTS AND INTERPRETATION

Table 1 provides an overview of the socio-economic and demographic characteristics of the mothers included in the study. It outlines variables such as age, mother's age at first birth, educational level, marital status, employment status, religion affiliation, household wealth index, tribe, sleeping under a net, having a net, parity (number of children ever born), and child survival status. The table indicates that a significant proportion of the respondents were over 30 years old (51.43%), and a majority got married before the age of 20 (57.14%). Furthermore, a high percentage of mothers had either primary education or no formal education (87.14%), while a smaller proportion had secondary education (11.43%). Most partners of these women had primary education or no formal education as well (85.71%). Additionally, a considerable number of mothers were unemployed (42.86%), and the majority belonged to the Islam religion (60.00%). Table 2 delves into the utilization of maternal and child healthcare services among the mothers. It explores variables such as where initial treatment was sought, place of delivery, distance to healthcare center, visit to healthcare center, vaccination, timing of first antenatal care, postnatal care attendant, and number of antenatal care visits. The results show that a significant number of mothers sought initial treatment at health centers (42.86%), while a considerable proportion delivered their babies at public health centers (52.86%). However, a high percentage of mothers did not visit healthcare centers in the last two weeks (70.00%), citing distance as a major barrier (98.57%). Despite this, all children received vaccination (81.43%), though a majority did not receive postnatal care (84.29%). Tables 3 and 4 present Cox regression analyses examining the effects of both socio-economic and demographic characteristics and maternal and child healthcare services utilization on infant survival. Table 3 suggests that mother's level of education, mother's age at first birth, and household wealth index significantly affect infant survival. On the other hand, Table 4 indicates that where initial treatment was sought, place of delivery, and postnatal care attendant have significant effects on infant survival. Finally, Table 5 shows the interactional effects of mother's socio-economic and demographic characteristics and maternal and child healthcare utilization on infant survival. It reveals that certain variables, such as mother's education, partner's education, and place of delivery, have significant effects on infant survival when combined with other factors. In summary, the study provides valuable insights into the socio-economic and demographic characteristics of mothers, their utilization of maternal and child healthcare services, and the impact of these factors on infant survival in KIJUMO VILLAGE.

DISCUSSION

The results of this study corroborate previous research, consistently indicating an inverse relationship between a child's survival beyond age one and the maternal utilization of healthcare services. Specifically, findings from the KIJUMO community demonstrate that a mother's engagement with maternal and child healthcare services is influenced by her socioeconomic and demographic background, echoing similar conclusions drawn by [5] Notably, children born to uneducated mothers exhibit greater vulnerability to infant mortality due to early childhood illnesses, as observed in [6]. The lack of healthcare utilization in KIJUMO village is closely tied to the economic hardships faced by many mothers, aligning with [9], findings highlighting higher infant mortality rates in rural areas with inadequate healthcare facilities and impoverished living conditions. Similarly, [14] discovered in rural Bangladesh that despite affordable healthcare options, financial constraints hindered mothers from accessing essential services, potentially jeopardizing infant survival [20]. These findings resonate with [17], underscoring that infant mortality often stems not only from insufficient healthcare infrastructure but also from financial barriers that lead mothers to rely on traditional healthcare alternatives. Additionally, distance to healthcare facilities emerged as a significant obstacle, as reported by a considerable portion of mothers [22]. The low educational attainment of mothers and their partners, coupled with household poverty and lengthy intervals between births, contribute to the reluctance in seeking postnatal healthcare services, thereby exacerbating infant mortality rates. These factors align closely with [26] study in Kenya, which identified maternal education, poverty, and proximity to healthcare facilities as primary determinants influencing maternal uptake of postnatal care services [30]. The findings of this study align with previous research highlighting the importance of socioeconomic factors in determining healthcare utilization and infant survival. Access to healthcare services

remains a challenge in underserved communities like Kijumo Village, where infrastructure and economic constraints hinder healthcare access. Addressing these barriers through targeted interventions, including infrastructure improvements, subsidized services, and health education programs, is crucial for improving maternal and child health outcomes.

RECOMMENDATIONS

- Improve Infrastructure: Advocate for investments in road infrastructure, school health facilities options to enhance geographical accessibility to healthcare facilities and awareness.
- Subsidized Services: Introduce subsidized or free maternal and child health care services for low-income household to mitigate economic constraints.
- Health Education: Conduct community health education programs to raise awareness about the importance of maternal and child health care services.
- Staffing and Supplies: Address staffing shortages and ensure consistent availability of medical supplies at the local health center to improve the quality of healthcare services.

CONCLUSION

This report underscores the need for a multifaceted approach to improve maternal and child health care services in Kijumo Village, Bushenyi district Western Uganda. By addressing geographical, economic, educational and infrastructural factors, we can enhance healthcare access and utilization, ultimately contributing to better maternal and child health outcomes in the community.

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