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The Health Insurance Enrolment and Utilization of Maternal Healthcare Services among Women in Kenya

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Abstract

The Third Sustainable Development Goal of the United Nations Development Programme (UNDP) requires governments to provide good health for their populations by the year 2030. To achieve this, the Kenyan government has embarked on implementing various programmes targeting women. For instance, the government initially abolished the maternity services fee so as to enhance the utilization of maternal health care services. For efficient and effective management of the maternal healthcare services programme, the government transferred the services from the Ministry of Health to the National Hospital Insurance Fund. According to the Kenya Demographic Health Survey (KDHS) report, these policies led to an increase in enrolment in health insurance from 19.5 per cent to 26 per cent of women. Despite the improvement in health insurance uptake, the mortality rates are still higher than seventy deaths per 100,000 live births. One of the probable causes of these mortality rates may be due to delivery at home. A woman who delivers at home may not get medical attention in case of an emergency. To improve maternal health outcomes, there is a need to investigate the relationship between enrolment in health insurance and utilization of maternal healthcare services among Kenyan women. To achieve this objective, the study uses secondary data sourced from the Kenya Integrated Household Budget Survey (KIHBS). The study estimates this relationship using the Propensity Score Matching method. The results reveal that women who have enrolled for health insurance are 3.6 per cent more likely to utilize maternal health care services than those not enrolled. The study, therefore, recommends the formulation of policies targeting the enrolment of women in health insurance schemes.

Key words: *Healthcare, Insurance, maternal service, Socio-economic characteristic.*

1.0 Introduction

Health is strongly correlated to the economic development of a country. Many countries have resorted to increased investment as a strategy to achieve socio-economic development. The road map to the economic development of a country includes the promotion of social development that covers several sectors. These sectors include health, environment, education, nutrition, and housing (Boris, Germain, Aloysius, and Edward, 2018). The implication of this is that health and health policies are important components in the economic development of a country (Boris, et al, 2018).

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Currently, health has attracted the attention of international organizations such as the United Nations. Human health is of great concern to this organization because of its contribution to the economic growth and development of a country. The importance placed on health care to the organization is manifested in its Sustainable Development Goals (SDGs). It will be noted that out of seventeen SDGs, two put a lot of emphasis on health care. The third goal, good health and well-being aims at improving longevity and reduction in some of the common killers linked to high child mortality. This third goal also emphasizes the achievement of universal health coverage (UHC) and access to essential drugs and vaccines. The UHC is a situation where all individuals and communities get the health services they need without suffering financial adversity. This is a major component of policies guiding the provision of health care in both low and middle-income countries (World Health Organization, 2010). This third goal also seeks to end preventable deaths of newborns and children under five. The sixth goal, on clean water and sanitation, is aimed at ensuring countries reduce water-borne diseases and prevent death caused by hazardous chemicals, air and soil pollution and contamination. Moreover, the target of these SDGs is to decrease the world maternal mortality rate to seventy deaths per 100,000 live births by the year 2030 (United Nations, 2015).

To enhance maternal healthcare service utilization in developing countries, medical insurance has a role to play in ensuring that the masses can access health services without being blocked due to a lack of finances (Tang, et al, 2013). Many developing countries have embarked on implementing health reforms to improve healthcare-supporting mechanisms. These initiatives are meant to raise the utilization of healthcare services effectively (Dussault, et al, 2008).

Kenya has realized a reduction in maternal mortality rates. However, the maternal mortality rates are still high as compared to less than 70 as enshrined in the Sustainable Development Goals. Figure 1 shows Kenya's mortality rate for the last two decades.

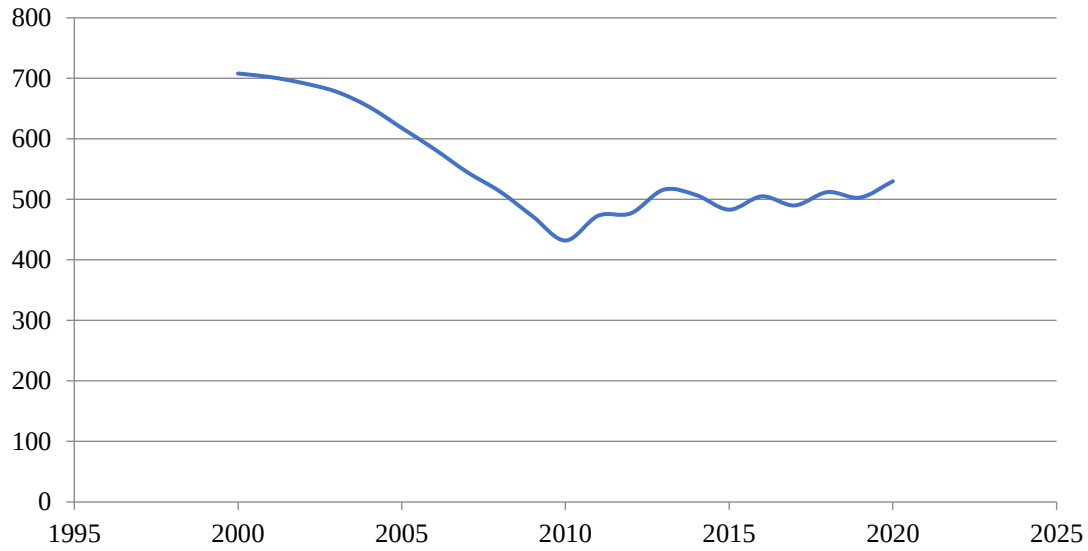

Figure 1: Kenya's maternal mortality rate for the last two decades
Source: World Bank (2022)

From Figure 1, it is observed that the maternal mortality rate (MMR) reduced to 432 deaths per 100,000 live births in 2010 from 780 deaths per 100,000 live births recorded in the year 2000. The MMR reduced to 503 deaths per 100,000 live births in 2019 from 512 per 100 0000 live births in 2018.

From 2011 to 2012, the maternal mortality rate took a positive trend though with fluctuations. However, the MMR reduced to 507 deaths per 100,000 live births in 2014 from 516 per 100,000 live births recorded in 2013. There was a further reduction to 483 in 2015. The MMR reduced to 503 deaths per 100,000 live births in 2019 from 512 per 100 0000 live births in 2018.

The mortality rate in Kenya can be linked to deliveries at home since complications arising from delivery may not be addressed adequately. According to Regassa, et al, (2022), home delivery was second highest among Kenyan women as compared to other women in Eastern Africa. The findings of this study showed that 37.5% of Kenyan women give birth at home compared to 34.7 per cent and 6.9 per cent for Tanzania and Rwanda, respectively. However, the choice for home delivery may be because of traditional beliefs in some cultural practices by pregnant women and society (Olungah, 2006). The author further indicates that women may choose to deliver at home due to the failure of the traditional society to embrace change. Traditional society views modernization as a deviation from the prescribed way of life.

To improve the health outcome in Kenya, the government has put in place various reforms. One of these reforms was the transfer of the management of free maternal healthcare services from the Ministry of Health (MoH) to a national health fund called the National Hospital Insurance Fund (NHIF). This action was aimed at improving efficiency, accountability, and effectiveness. The government further revised the programme to the 'Linda Mama' programme that extended the services beyond the public health facilities, in addition to expanding the benefits package. This involved NHIF signing contracts with private-for-profit and faith-based healthcare centres to offer delivery services (Owuor & Amolo, 2019).

The promulgation of the 2010 Kenyan Constitution led to the transfer of health services to county governments (Republic of Kenya, 2010). The county governments have put in place measures to improve the health of expectant women. For instance, Vihiga County implemented the Boresha Afya Ya Mama Na Mtoto programme aimed at supporting new mothers and infants. Kakamega County implemented the Imarisha Afya ya Mama Na Mtoto programme also aimed at supporting new mothers and infants (Development Pathways, 2019). Some counties also initiated enrolment of vulnerable people in the counties to medical insurance. For instance, the Marwa Kisumu Solidarity Health Cover, an affordable and accessible medical cover was implemented to provide health insurance to 90,000 poor households. Beneficiaries of the programme access both inpatient and outpatient care under the NHIF Supa Cover benefits package rolled out at initially forty-eight selected public health facilities that are evenly spread across the seven sub-counties of Kisumu County (International Labour Organization, 2023).

Although efforts have been made to increase health insurance uptake by Kenyan women, health insurance coverage is still low in Kenya. The Demographic and Health Survey (KDHS) of 2022 showed that 39 per cent of females in urban areas have health insurance as compared to 20 per cent of women in rural areas. The report revealed that most women had enrolled in the NHIF as compared to other forms of health insurance. The report showed that 18.9 per cent of females between the ages of 0 to 14 had enrolled in the NHIF. About 26 per cent of female Kenyans had enrolled in the NHIF. The report also showed that about 28 per cent of women above the age of 50 years had enrolled in the NHIF. The study revealed that less than five per cent of women in the three age groups had enrolled in private or commercial insurance schemes. Those who had enrolled in community-based insurance schemes were less than 1.5 per cent for each of the age groups (Republic of Kenya, 2023).

Enrolment in health insurance is meant to increase the utilization of health facilities by pregnant women during delivery. This can reduce the maternal mortality rate since complications that can affect the new mother can be addressed if she delivers in a health facility. Republic of Kenya Demographic Health Survey (2023) showed that many maternal deaths occur within 48 hours after delivery. The review of literature that is specific to Kenya shows differences in the approach and time of the studies. For example, three studies used the 2008–09 KDHS to study women and health insurance. Kimani, et al (2014) studied factors that influence the uptake of medical insurance among women in Kenya. Kitui, et al (2013) studied factors that determine the utilization of maternal healthcare services among women in Kenya. Lastly, Achia & Mageto (2015) examined the individual and community factors that influence the use of maternal prenatal healthcare services in Kenya. Were et al. (2017) investigated the relationship between health

insurance and institutional delivery among pregnant women. However, this study used the 2008-09 KDHS data before the start of the SDGs and enhanced government and county government health policies targeting childbearing women.

It is against this backdrop that this study investigated the effect of health insurance enrolment on maternal healthcare service utilization by Kenyan women using the most recent KIHBS data. The study argues that health insurance enhances not only the access to but also the utilization of health care services, thus improving maternal health. The argument is anchored on an economic theory suggesting that individuals buy health insurance to insulate themselves from high out-of-pocket expenditure. In addition, an individual buys health insurance as a way to get access to health care services that would otherwise be not affordable.

2.0 Methodology

2.1 Data and Variables

The study used cross-section data that was sourced from the 2015/16 Kenya Integrated Household Budget Survey (KIHBS) for analysis. The KIHBS is a nationwide representative survey which considered 24,000 households in their sample and collected detailed information on health and socio-demographic characteristics. The households were categorized into 5,360 clusters drawn from 96,000 enumerative areas of the 2009 Kenya Population Health Census (KPHC). The sample of women comprises 21,592 women aged between the ages of 15 and 49 years.

The final sample for analysis consists of women who reported two outcomes of this study's interest which is delivery in a health facility, that is, institutional delivery or at home. Institutional delivery takes place at a clinic, maternity home, or hospital. This implies that such a woman has access to birth specialists. According to the World Health Organization (2004), birth specialists include nurses, doctors, or trained midwives who attend to a woman during delivery. The independent variable is enrolment in a health insurance scheme (Yes/No). The 2015/16 KHIBS contains questions on one's enrolment in a health insurance scheme. However, enrolment in a medical insurance scheme is not random since people can choose whether to have health insurance or not and, at what time of the year they can enrol. Since enrolling on a health insurance scheme is not a random event, the study used selected covariates in this analysis. The covariates included marital status, age, number of children, education, household size, employment status, area of residence, exposure to media and household headship. The covariates give room for required regression modification and use of observed attributes in the construction of counterfactuals of the uptake of medical insurance based on Propensity Scores (PM).

2.2 The Empirical Model

The study could have required a counterfactual to estimate the effect of health insurance enrolment on the utilization of health care services for pregnant women, that is, how women could be, had there been no health insurance in this case. Randomization could have been the best way of achieving this counterfactual. However, enrolment in health insurance is not randomized and, therefore, this study which is observational uses non-experimental methods. First, the study estimated medical insurance enrolment and maternal healthcare services utilization by use of a logistic regression model. The study estimated the marginal effects after estimating the logistic regression model. The key concern of the study was the interpretation of the dependent variable as the probability of either having utilized maternal healthcare service or not given other explanatory variables as shown in equation 1.

We assume that there is a linear relationship between the latent variable y^* and explanatory variables (X_i). The structural model is illustrated as follows:

$$y^* = X_i\beta + \varepsilon \quad \ldots\ldots 1$$

Where variable y^* is unobserved latent variable ranging from negative infinity ($-\infty$) to positive (∞), X_i is a vector of regressors indicated above, β is a vector of parameters for estimation and ε is error term. Also letting the following measurement equation links the latent variable y^* and the observed binary variable y:

$$y = \begin{cases} 1 \;\; if \;\; y^* > k \\ 0 \;\; if \;\; y^* > k \end{cases} \qquad \ldots\ldots 2$$

Where y is 1 if an individual utilized maternal healthcare service, 0 otherwise? K is the cut-off point, a critical level of the index y^* beyond which the individual utilizes maternal healthcare service.

However, since selection into health insurance is not randomized, making any empirical estimation of a causal relationship with enrolment in health insurance requires controlling for adverse selection. As a way of reducing selection on observables, the PSM method was implemented built on the conditional probability of health insurance enrolment given certain covariates. The covariates are given above. The estimation of propensity scores took advantage of the availability of the mentioned covariates in KHIBS and decreased the bias occasioned by the differences in the observed covariates thus balancing the covariates between women who have health insurance and those who do not. After applying the logistic model in the estimation of propensity scores (PS) and attaining the balance of PS between the individuals enrolled in health insurance and those not enrolled, the aim was to carry out an estimation of Average Treatment Effect denoted as ATE, that is, the effect of health insurance enrolment. ATE is obtained as a difference in the mean response for those women enrolled in health insurance and those not enrolled for the health insurance and can be written as illustrated in equation 3:

$$ATE = \sum_{i=0}^{n}(Y_{1i} - Y_{0i})) \ldots\ldots 3$$

Where n is the number of women, Y_{1i} is the outcome for those with health insurance and Y_{0i} is the outcomes for those without health insurance. However, equation 3 cannot be estimated since both Y_{1i} and Y_{0i} cannot be observed for every woman. In addition, since the study is an observational one, there is a high probability that the outcome of the study's interest, that is, the delivery in a medical institution and thus accessing services of a birth attendant depends on treatment, thus leading to a biased ATE. The study thus uses the obtained PM to estimate the causal link of health insurance uptake. Specifically, the study estimated and reported the Average Treatment Effect on Treated (ATT), that is, the average response to the treatment (health insurance uptake) for those women enrolled in medical insurance. From the ATE equation illustrated in Equation 3, the study estimated the ATT as shown in Equation 4.

$$ATT = E(Y_{1i} + Y_{10}|W, Z) = 1) \ldots\ldots 4$$

Where W is a vector of the covariates and Z is the concerned treatment, health insurance enrolment in this case. The estimation of ATT is anchored on the following assumptions (Morgan & Winship, 2007). First is that there is a stable unit treatment value assumption (SUTVA). This means that the treatment applied to one entity does not affect the outcome of any other. In other words, we mean there is no interference among pregnant women. The second assumption indicates the presence of non-zero probability in obtaining every treatment level, enrolling in health insurance in this case for the combination of the exposure values and the covariates among elements in the study population, women seeking maternity services in this case. This is called the positivity assumption. This assumption is made when each of the homogeneous elements can be subjected to treatment (enrolment in health insurance) or the control group (the uninsured women). The last assumption is that the treatment assignment mechanism is said to be unconfounded if the treatment

status T_i is conditionally independent of the potential outcomes, given a set of covariates X_i. This is represented as illustrated in equation 5.

$$T_i||Y_{0i}, Y_{1i}|X_i \ldots\ldots 5$$

These assumptions made it possible for the construction of the matched health insurance samples. This was built on a balancing score, that is, the PS (Rosenbaum & Rubin, 1983) and the estimation of the relationship of enrolling in a medical insurance scheme by kernel, stratification, and the nearest neighbour matching. Inverse probability weighting (IPW) was also conducted since this was an observational cross-sectional study with one treatment variable (Bender and Lange, 2001).

3.0 Results

3.1 Summary Statistics

The socio-demographic characteristics of the individuals who are enrolled in the health insurance and those not enrolled are presented in Table 1.

Table 1: Summary Statistics

Variable	Overall Sample N = 21,598	Enrolment in Health Insurance N = 3,875	Not enrolled in Health Insurance N = 17,703
Age	28.21	30.02	27.82
Household head	0.21	0.23	0.19
Place of residence	0.39	0.37	0.38
Income	6799.19	6874.59	6780.80
Exposure to media	0.26	0.27	0.26
The Household Size	4	4	4
Number of children	1	1	1
Marital Status	0.55	0.68	0.54
Primary Education	0.37	0.36	0.37
Secondary education	0.16	0.26	0.13
Tertiary Education	0.061	0.181	0.035
Postgraduate Education	0.0010	0.0046	0.00023

Source 1: Computations of the author based on data from KNBS data

From Table 1 it is evident that on average, the women who have enrolled for health insurance are older than those who have not enrolled. Such a situation is correct because it is expected that those who are older could have finished their education and, therefore, have embarked on having a family. This, therefore, implies that most of the older ones will enrol for health insurance to access maternity services with ease.

The results also revealed that on average, families headed by a male parent have a higher probability of enrolling for health insurance as compared to female-headed families. This finding may be conforming to actual life situations because men are likely to be working and, therefore, are enrolled in health insurance by their employers. The rest of the family members are then covered by the health insurance as beneficiaries.

In addition, the results revealed that on average, families that are exposed to media, especially through having a television set, have a higher probability of enrolling for health insurance as compared to those that are not exposed to media. This finding supports the fact that those families that are exposed to media may access sensitization sessions about health insurance. They may also watch advertisements of various health insurance products thus making them a health insurance cover.

Further, it was revealed that on average, a woman who is married has a higher probability of enrolling for health insurance as compared to one who is not married. This finding supports the fact that the married may pool their income together and, therefore, will have a surplus to enrol for health insurance than those not married.

The results also revealed that on average, a woman who resides in a rural area has a higher probability of enrolling for health insurance as compared to one who resides in urban areas. This finding supports the fact that the many national government and county government health initiatives to cushion poor women are highly concentrated in rural areas. A good example of such programmes is the Universal Health Coverage by the National government that considered the rural counties Nyeri, Isiolo and Machakos in the pilot stage.

3.2 Empirical Results

Table 2 shows the results for marginal effects from the logistic regression model. Women who have primary-level education, secondary education, and tertiary

Table 2: Marginal effects Results from the logistic regression model in Equation 1

VARIABLES	MARGINAL EFFECTS	
Health Insurance	0.486***	(0.087)
Age	0.009***	(0.003)
Household Head	-0.006	(0.065)
Area of Residence	0.085	(0.069)
Income	0.007	(0.036)
Exposure to Media	-0.012	(0.094)
Household size	-0.000	(0.014)
Number of children	-0.108***	(0.021)
Marital Status	-0.300***	(0.074)
Primary Education	0.836***	(0.065)
Secondary Education	0.659***	(0.091)
Tertiary Education	0.645***	(0.131)
Postgraduate Education	0.162	(0.751)
Constant	1.626***	(0.343)
Observations	14,545	
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Source 2: Computations of the author based on data from KNBS data

The marginal effects results shown in Table 2 indicated that having a medical insurance scheme is linked to an increased likelihood of using maternal healthcare services. For example, in the logistic model, women with health insurance are 48.6 percentage points more likely to use maternal healthcare services thus having access to skilled birth attendants. The coefficient is statistically significant at a 1 percent level of significance. This implies that health insurance is an important determinant of the utilization of maternal healthcare services.

The results indicated that being older is associated with an increased likelihood of using maternal healthcare services. Specifically, older women are 0.9 percentage points more likely to utilize maternal healthcare services. The coefficient of age is statistically different from zero, an implication that age is a key determinant of utilizing maternal health care services.

From the results, it was revealed that a high number of children is associated with a reduced probability of using maternal healthcare services. Specifically, it was revealed that women with more children are 10.8 percentage points less likely to consider using maternal healthcare services. education have a higher probability of utilizing maternal health care services. The probability of using maternal health care services by women increases by 83.6 per cent, 65.9 per cent and 64.5 per cent when a woman has primary, secondary and tertiary education, respectively.

The study used the explanatory variables to estimate the propensity scores. The results from these propensity scores were obtained are shown in Table 3.

Таблица 3: Results for generating the Propensity Scores

VARIABLES	MARGINAL EFFECTS	
Age	0.022***	(0.002)
Household Head	0.096***	(0.032)
Area of Residence	-0.049	(0.035)
Income	0.035*	(0.018)
Exposure to Media	0.012	(0.045)
Household Size	0.017***	(0.007)
Children	-0.081***	(0.011)
Marital Status	0.522***	(0.037)
Primary Education	0.488***	(0.031)
Secondary Education	1.005***	(0.037)
Tertiary Education	1.545***	(0.046)
Postgraduate Education	2.266***	(0.342)
Constant	-2.825***	(0.185)
Observations	14,542	
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Source 3: Computations of the author based on data from KNBS data

From Table 3, it was established that the results that were used to estimate the propensity scores conformed with economic theory. Older women, those from households that are headed by male individuals, those with higher incomes, women with many children and women who are in marriage have a higher probability of utilizing maternal health services. The study further revealed that educated women, especially those with primary, secondary, tertiary, and postgraduate education have a higher chance of utilizing maternal healthcare services. However, it was revealed that women from urban settlements and those who have many children have a lower probability of utilizing maternal healthcare services.

The propensity scores were obtained, and the study was used to estimate the causal relationship of enrolling in health insurance. Specifically, the study estimated the 'Average Treatment Effect on the Treated' (ATT) with the Nearest Neighbour Matching method. The results are shown in Table 4.

Table 4: Average Treatment Effect on the Treated (ATT) with Nearest Neighbour Matching Method Results

Number of Treatment	Number of control individuals	ATT	Standard Error	t
2734	3014	0.036	0.008	4.248

Source 4: Computations of the author based on data from KNBS data

The results revealed that individuals who have enrolled for health insurance have a 3.6 percentage points possibility of using maternal healthcare services. As it is evident, the t value is greater than 2 implying that there are significant differences between women who have enrolled for health insurance and those who have not been utilizing maternal health care services. This finding conforms to the economic theory. The results are also in agreement with the Were et al. (2017)

study on the effect of health insurance on maternal healthcare utilization using Demographic Health Survey data and propensity score matching. However, their study looked at three countries with high levels of insurance coverage (Ghana, Indonesia, and Rwanda) unlike Kenya. The positive link between health insurance enrolment and utilization of maternal health services in this study complements the study by Were et al. (2017). As such, this study adds to the literature by showing that insurance is important and beneficial for maternal health outcomes. The study also highlights the value of health insurance in countries that have low health insurance enrolment rates, particularly among those of lower socio-economic status like Kenya. These findings are, therefore, important in informing reforms to be taken on healthcare financing in Kenya and beyond.

The results have suggested that access to insurance increases the chances of a woman using maternal healthcare services. These results, therefore, recommend that policy formulators should focus on putting many women under health insurance coverage.

4.0 Conclusion

Enrolment in health insurance by a pregnant woman makes her deliver at a health facility. This is unlike a pregnant woman who is not enrolled for health insurance. It is important to note that enrolment in health insurance has great benefits for pregnant women of lower socio-economic status in Kenya. The findings illustrate that healthcare financing reforms should be instituted not only in Kenya but also in other developing countries with similar settings. Specifically, health insurance enrolment programmes should be implemented to target pregnant women, particularly those of lower socioeconomic status.

References

Achia, T. N., & Mageto, L. E. (2015). Individual and contextual determinants of adequate maternal health care services in Kenya. *Women & health*, *55*(2), 203-226.

Bender, R., & Lange, S. (2001). Adjusting for multiple testing—when and how? *Journal of Clinical Epidemiology*, *54*(4), 343-349.

Boris, D. Y. G., Germain, S., Aloysius, N. M., & Edward, T. E. O. (2018). The Role of Literacy in the Economic Growth of Cameroon. *European Scientific Journal, ESJ*, *14*, 22-25.

Development Pathways (2019). Mother and child health is the focus of new maternal health transfers in western Kenya. Nairobi: Development Pathways

Dussault, G., & Dubois, C. A. (2003). Human resources for health policies: a critical component in health policies. *Human resources for health*, 1(1), 1-16.

International Labour Organization (2023). Marwa: Expanding social health insurance in Kisumu County, Kenya. Geneva: ILO

Kimani, J. K., Ettarh, R., Warren, C., & Bellows, B. (2014). Determinants of health insurance ownership among women in Kenya: evidence from the 2008–09 Kenya demographic and health survey. *International journal for equity in health*, 13, 1-8.

Kitui, J., Lewis, S., & Davey, G. (2013). Factors influencing place of delivery for women in Kenya: an analysis of the Kenya demographic and health survey, 2008/2009. BMC *pregnancy and childbirth*, 13, 1 10.

Morgan, S. L., & Winship, C. (2007). Analytical methods for social research. Cambridge: Cambridge University Press.

Olungah, C. O. (2006). The Socio-Cultural Context of Maternal Healthcare in Bondo District, Western Kenya: Implications for Safe Motherhood Interventions. Unpublished PhD thesis, University of Nairobi, Kenya

Owuor, H., & Amolo, A. S. (2019). Interrupted time series analysis of free maternity services policy in Nyamira County, Western Kenya. *PLoS One*, 14(5), 1-13.

Regassa, L. D., Tola, A., Weldesenbet, A. B., & Tusa, B. S. (2022). Prevalence and associated factors of home delivery in Eastern Africa: Further analysis of data from the recent Demographic and Health Survey data. SAGE open medicine, 10, 20503121221088083.

Republic of Kenya (2009). The Kenya Demographic Health Survey. Nairobi: Government Printer.

Republic of Kenya (2010). The Kenyan Constitution. Nairobi: Government Printer.

Republic of Kenya (2023). The Kenya Demographic Health Survey. Nairobi: Government Printer.

Roberts, M. J., Hsiao, W., Berman, P., & Reich, M. R. (2008). Getting health reform right: a guide to improving performance and equity. *New York*.

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. Biometrika, 70(1), 41-55.

Shelton, J. D. (2013). Ensuring health in universal health coverage. *Nature*, *493*(7433), 453-453.

Tama, E., Molyneux, S., Waweru, E., Tsofa, B., Chuma, J., & Barasa, E. (2018). Examining the implementation of the free maternity services policy in Kenya: a mixed methods process evaluation. *International journal of health policy and management*, 7(7), 603.

Tang, D., Gao, X., & Coyte, P. C. (2019). The effects of compulsory health insurance on birth outcomes: evidence from China's UEBMI scheme. *BMC Health Services Research*, *19*(1), 1-15.

United Nations (2015). Sustainable Development Goals (*SDGs).* Transforming our world. Geneva: UN

Were, L. P., Were, E., Wamai, R., Hogan, J., & Galarraga, O. (2017). The Association of Health Insurance with institutional delivery and access to skilled birth attendants: evidence from the Kenya demographic and health survey 2008–09. *BMC Health Services Research*, *17*(1), 1-10.

World Bank (2022). The World Development Indicators. Washington D.C: World Bank