International Journal of

Health, Medicine and Nursing Practice

(IJHMNP)

Client's satisfaction with maternal child health services in tier three public health facilities, Kisumu county, Kenya

[1*]Vincent O. Ibworo

[1]Department of Public Health and Community Development, Maseno University, Maseno, Kenya

*Corresponding Author's E-mail: ibworovin@gmail.com

[2]Dickens Omondi

Department of Public Health/Center for Research, Innovation and Technology, Jaramogi Oginga Odinga University of Science and Technology

[3]Bernard Guyah

Department of Public Health and Community Development, Maseno University, Maseno, Kenya

ABSTRACT

Purpose: The declaration of free maternal and child Health services by the government of Kenya was meant to address some of the systemic service access challenges and increase the number of clients using MNCH services, consequently reducing maternal and neonatal deaths. However, persistent poor maternal and child health indicators in Kenya even with free MNCH services as evident in Kisumu County portends considerable concern hence the reason for this study. There was need to identify factors or factor combinations that affect MNCH service quality in Kisumu County.

Methodology: This was a descriptive analytical study whereby data was collected from a sample of 284 mothers seeking MNCH services in Kisumu tier three public health facilities using structured questionnaires and data was analyzed using the Statistical Package for the Social Sciences. Univariate statistics was used to assess patterns of responses to the client satisfaction questionnaire items. Bivariate logistic regression was used to assess association between client satisfaction and dimensions of their characteristics; p-values of less than 0.05 were considered significant.

Results: Mothers aged 30-39 years were more likely to report being satisfied with maternal, newborn and child health services as compared to those aged 15-19 years (aOR=0.52, 95%CI=0.28-0.96, p-Value=0.035). The clients who had 1 pregnancy (aOR=2.29, 95%CI=1.04-5.05, p-value=0.040) and 2 pregnancies (aOR=3.22, 95%CI=1.54-6.70, p-Value=0.002) were more likely to report being satisfied with maternal child health services in public health facilities. Similarly, there was significant increased odds of being satisfied among those who resided in rural areas (aOR=2.24, 95%CI=1.05-4.79, p-Value=0.037), those who use vehicles as means of transport (aOR=6.87, 95%CI=1.38-34.28, p-Value=0.019) and those who use motorbike as means of transport (aOR=7.79, 95%CI=1.61-37.77, p-Value=0.011) and maternal child health services satisfaction.

Unique contribution to practice and policy: The feedback from this study can be used by national and county governments, state agencies and other health stakeholders in designing communication and advocacy strategies for targeted groups or populations both at the community and health facilities to increase access and acceptability of MNCH services.

Key words: Maternal child health, tier three health facilities, client satisfaction, quality healthcare.

1.0 INTRODUCTION

The World Health Organization has defined quality of healthcare as "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. High quality services help to ensure that clients receive the care that they deserve and that the providers offer the best. The quality of care for women and newborns has been defined as the degree to which maternal and newborn health services increase the likelihood of timely, appropriate care for the purpose of achieving desired health outcomes that are both consistent with current professional knowledge and take into account the preferences and aspirations of individual women and their families (WHO, 2016).

Measuring of service quality in healthcare setting is an old concept. Service quality was long categorized by Donabedian into: i) structural quality, which refers to quality issues of the structural within a healthcare facility. This can be resources like human labor, materials, technology of information. ii) process quality, which means the manner of service provision and includes individual measures within core and sub processes and iii) outcome quality indicates the results and typically comprises indicators such as client perception and satisfaction (Donabedian, 1980). More than a billion people, mainly from low and middle-income countries (LMICs), still find it difficult to access quality maternal, newborn and child health services and they account for 99% of all maternal and child deaths with sub-Saharan Africa accounting for 66% (WHO, 2015). Access variation occurs not only between developed and developing countries, but also within countries, where maternal and child mortality rates differ by geographic location, social and economic status.

One of the reasons these countries might not be able to access quality healthcare services could include client's factors like socio-economic and demographic factors: age, cultural beliefs, health seeking behavior, education, religion, proximity of the health facility, income etc. These factors might interact differentially to determine the quality of healthcare; hence socio-economic and demographic factors could be influencing client's ability to utilize maternal, newborn and child health services by predisposing them to illness, affecting their health seeking behavior and perceived professionally evaluated need for healthcare services and client satisfaction (Andersen, 2007). Low level of education for both the childbearing mothers and their spouses, and poverty could be associated with poor health status, especially for those from the rural areas (Jalali-Farahani, 2017), while women with higher educational attainment and from wealthy households are presumed to have better access and utilization of healthcare services as compared with those who are poor with less education (Yaya, 2019). There are also new innovations in financing, delivery, and regulation of health services that hold promise for improving access to the poor, such

as the use of health equity funds, conditional cash transfers and regulation of health services including the free maternal, newborn and child health care services in Kenya.

The challenge remains to find ways to ensure that vulnerable populations have a say in how strategies are developed, implemented, and accounted for in ways that demonstrate improvements in access by the poor (David, 2008). In Kenya, maternal, newborn and child health indices remain poor, with the country's maternal mortality rate being 362 deaths per 100,000 live births against SDG target of less than 70 maternal deaths per 100 000 live births (KDHS, 2014). This indicates poor access to and use of services, which might be attributed to, among other factors, poor quality of maternal, newborn and child health services and client's related social and demographic determinants. Consequently, the government of Kenya has prioritized increased coverage and client service access (KHSSIP, 2014-2018) to address the poor outcomes. However, without simultaneous commensurate improvement in service availability, increased workload has rapidly overstretched the current resources and service functions (Ibworo, 2020). The free maternity care policy in Kenya suddenly lead to an increasing number of clients seeking skilled obstetric care services at government-run health facilities. The simultaneous impact of this on the efficiency of services to achieve and maintain quality and client perspectives on their experiences with processes have not been assessed. Individual client characteristics are thought to interact differentially with components of maternal, newborn and child health service delivery functions to determine their satisfaction and the ability to utilize maternal child health services. Quality improvement to enhance clients' care outcomes can increase user satisfaction and hence increased use of maternal child health services. hence the need to explore the client satisfaction with the services they receive as a proxy measure of how service process changes affect the attainment of socially desirable outcomes as a matter of policy interest.

2.0 LITERATURE REVIEW

A qualitative study done in South Africa revealed that poor socio-economic and demographic factors was an underlying factor to the vulnerability of mothers and their neonates to illness and death; other contributing factors were vviolation of reproductive rights and powerlessness of women. The socio-economic and demographic factors could be the main determinant of maternal child health and more coordinated multi-sectorial interventions is required to address both the social determinants and direct causes of maternal and child deaths (Mmusi-Phetoe, 2016). Community participation in health program planning, implementation and quality improvement was recently recommended in guidelines to improve use of skilled care during pregnancy, childbirth and the postnatal period for women and newborns. Implementation requires careful consideration of the economic and socio-cultural factors. Relevant stakeholders must be actively involved, particularly those supporting socio-economic activities and those often excluded from decision making. This helps in improving patient/community perception on received healthcare services and socio-economic status hence better health seeking behavior that will improve quality of maternal and child health (Howard-Grabman, 2017).

The quality of maternal care is low in Kenya, and care available to the impoverished is significantly worse than that for the better off. To achieve the national targets of maternal and neonatal mortality reduction, policy initiatives need to tackle the socio economic and demographic factors that can

lead to low quality of care, starting with high-poverty areas (Sharma, 2017). A study done in Kenya to assess the extent to which ability to pay can be determined by readily obtainable information on patients' socio-economic characteristics demonstrated that the socio-economic characteristics do predict ability to pay, access and utilize MNCH services. Thus, although the evidence from Kenya indicates that the level of outpatient fees could be paid by the majority of the population without undue burden, a minority would require fee exemptions. The main obstacle to accessing and implementing a working healthcare system could be inability to easily identify those with poor socio-economic indicators (Joyce, 2013).

3.0 METHODOLOGY

3.1 Study site and design

This was a cross sectional analytical study conducted in Kisumu County which covers 0.36% of the total land mass in Kenya. It is located between longitudes 35″ 28″ and 35″ 36″ and latitudes 0″12″ and 1″10″ South. The County still has poor maternal indicators (Kisumu County fact sheet, 2017) with higher poverty rates compared to other counties in Nyanza region. Kisumu County is the home to the largest town in the region hence a high urban and peri-urban population. The county has 210 health facilities of which seven are level 4/tier three public health facilities. All the seven tier three health facilities of Kisumu County were included in the study since they are equally distributed across the county. Given an average of 4713 mothers attending the maternal, newborn and child health services monthly in Kisumu county tier three public health facilities (DHIS 2017), a sample of 284 was identified using Cochran's sample size determination formula (Cochran, 1977):

$$n = \cfrac{\cfrac{z^2 \times p(1-p)}{e^2}}{1 + \left(\cfrac{z^2 \times p(1-p)}{e^2 N}\right)}$$

n = sample size
z = z-score (1.96. Confidence level 95%)
e = margin of error (0.05)
p = population service uptake proportion (30%)

$$n = \frac{0.806736/0.0025}{1 + 0.068469} = 302.01568767 = 302$$

Sample size was adjusted according to the formula below since target population is less than 10,000

$$n = n/1 + n/N$$
$$= 302/1 + 302/4713 = 283.834586$$
$$n = 284$$

This sample size was then distributed proportionately across all the seven tier three public health facilities according to the average monthly maternal, newborn and child health workload data from the Kenya District Health Information System (DHIS, 2017) shown in the Table 1.

Table 1: Average Monthly Workload and sample size distribution

Sub County	Health Facility Name	Monthly workload (x)	Sample size(x/N*n)
Seme	Kombewa Sub-County Hospital	578	35
Kisumu East	Kisumu County Referral Hospital	1137	69
Kisumu West	Chulaimbo Sub-County Hospital	934	56
Kisumu Central	Nyahera Sub-County Hospital	543	33
Muhoroni	Muhoroni Sub-County Hospital	322	19
Nyando	Ahero Sub-County Hospital	774	47
Nyakach	Nyakach Sub-County Hospital	425	25
	Total workload (N) 4713	**4713**	**284**

 Total sample size (n) 284

3.2 Inclusion criteria

Pregnant mothers attending ANC clinics and mothers in the puerperium who had a delivery in the selected health facilities, residents of Kisumu County and must have stayed in the County for more than 3 months were included in the study.

3.3 Data Collection Process

Data was collected between September and December from all the seven tier three health facilities using open and structured questionnaires administered to mothers seeking MNCH services by research assistants. The questions assessed different dimensions of client satisfaction with maternal child health services according to client's demographic, social and economic attributes such as: age, marital status, number of pregnancies, level of education, place of residence, mode of transport, distance from the health facilities, religion, cultural beliefs and income. Three medically trained research assistants were oriented on the study protocol and they administered the questionnaires.

3.4 Data analysis

Collected data was analyzed using the Statistical Package for the Social Sciences. Univariate statistics was used to assess patterns of responses demonstrated by frequency distribution of the mothers' socio-economic and demographic attributes. Bivariate logistic regression was used to determine whether there was an association between the mothers' attributes and client service satisfaction and p-values of less than 0.05 meant that statistically there was a relationship between the mothers' attributes and client service satisfaction while P-value> 0.05 meant that there was no relationship between mothers' attributes and client satisfaction with maternal, newborn and child health services.

4.0 FINDINGS

The objective of this study was to assess how the client's characteristics influenced their satisfaction with maternal, newborn and child health service in Kisumu tier three public health facilities. There was 100% response rate in all the variables which included: age, number of pregnancies, marital status, mothers' level of education, partners age, partners level of education, residence, mode of transport, time taken to health facility, religion, source of income and monthly income.

About half (51.2%) of the study participants were aged between 20-29 years while those aged 30-39 years comprised 31.3%. Among all participants, more than half of the clients lived below poverty line (53.9%); 42.9% resided in the rural areas and 18.3% each in slums. A slight majority (64%) had at least secondary level education, while (71.9%) were married and only few (17.4%) had had >3 pregnancies. The longest time taken to reach the health facility using a vehicle/ or motorbike was 30 – 60 minutes, (55.5%) with the least time being more than two hours (1.4%). A slight majority (65%) of the mothers used motorized transport to reach the facility (Table 2).

Table 2: Descriptive statistics for clients' socio-economic & demographic factors

Variable	Category	N	%
Age (years)	15-19	34	12.0
	20-29	146	51.2
	30-39	89	31.3
	40-45	15	5.5
No. of pregnancies	>3	48	17.4
	3	68	23.9
	2	101	35.3
	1	67	23.4
Marital status	Single (never married)	39	13.8
	Married	205	71.9
	Divorced	24	8.3
	Widowed	16	6.0
Mothers' Level of education	None	11	3.7
	Primary	92	32.4
	Secondary	118	41.6
	College/Tertiary	63	22.4
Partner's age	15-19	2	0.6
	20-29	57	20.0
	30-39	138	48.5
	40-45	69	24.2
	>45	18	6.7
Partner's level of education	None	5	1.8
	Primary	51	18.5
	Secondary	115	40.5

	College/Tertiary	113	39.3
Residence	Town Centre	52	18.3
	Slums	52	18.3
	Outskirts of town	57	20.6
	Rural	123	42.9
Mode of transport	Bicycle	15	5.5
	Walking	82	28.6
	Vehicle	74	25.9
	Motorbike	113	40.0
Time taken to health facility	<30 minutes	90	31.8
	30-60 minutes	157	55.5
	1-2hrs	33	11.4
	>2hrs	4	1.4
Religion	Protestant	134	47.2
	Catholic	104	36.6
	Muslim	26	9.3
	Others (SDA)	20	6.9
Source of income	Salary	64	22.4
	Business	125	43.4
	Remittances	44	15.5
	Farming	33	11.4
	Others	18	7.3
Monthly Income	<Ksh 6000	153	53.9
	>Ksh 6000	131	46.1

The mothers aged 30-39 years were less likely to report being satisfied with maternal, newborn and child services as compared to those aged 15-19 years (aOR=0.52, 95%CI=0.28-0.96, *p-value*=0.035). Mothers who had had 1 previous pregnancy (aOR=2.29, 95%CI=1.04-5.05, *p-value*=0.040) and those with 2 earlier pregnancies (aOR=3.22, 95%CI=1.54-6.70, *p-value*=0.002) were more likely to report being satisfied with maternal, newborn and child health services in public health facilities. Similarly, those who resided in rural areas (aOR=2.24, 95%CI=1.05-4.79, *p-value*=0.037), those who used vehicles as means of transport (aOR=6.87, 95%CI=1.38-34.28, *p-value*=0.019) and those who used motorbike as means of transport (aOR=7.79, 95%CI=1.61-37.77, *p-value*=0.011) were more likely to report increased satisfaction with maternal, newborn and child health services.

Those who belonged to other religion (SDA) were less likely to report of being satisfied with maternal, newborn and child health services as compared to those from protestant churches (aOR=0.16, 95%CI=0.04-063, *p-value*=0.008). However, there was no significant association between marital status, partner's age, partner's level of education, mothers' level of education, duration of visits, cultural beliefs, source of income, monthly average income and maternal, newborn and child health services satisfaction in tier 3 public health facilities. (Table 3).

www.carijournals.org

Table 3: Bivariate analysis of socio-economic and demographic factors

Variable	Category	N	%	aOR	95% CI	P-value
Age category	15-19	34	12.0	Ref		
	20-29	146	51.2	0.77	0.32-1.81	0.544
	30-39	89	31.3	0.52	0.28-0.96	0.035
	40-45	15	5.5	0.47	0.14-1.57	0.220
Marital status	Single	39	13.8	Ref		
	Married	205	71.9	1.60	0.73-3.51	0.240
	Divorced	24	8.3	0.73	0.22-2.39	0.599
	Widowed	16	6.0	0.82	0.21-3.16	0.769
Mothers' level of education	None	11	3.7	Ref		
	Primary	92	32.4	0.64	0.14-2.86	0.555
	Secondary	118	41.6	0.80	0.18-3.55	0.769
	Tertiary	63	22.4	0.65	0.14-3.04	0.586
Partner's age	15-19	2	0.6	Ref		
	20-29	57	20.0	3.34	0.80-13.94	0.098
	30-39	138	48.5	2.77	0.75-10.23	0.127
	40-45	69	24.2	2.63	0.66-10.45	0.171
	>45	18	6.7	N/A		
Partner's level of education	None	5	1.8	Ref		
	Primary	52	18.5	2.00	0.16-24.48	0.588
	Secondary	114	40.5	3.44	0.30-39.89	0.323
	Tertiary	113	39.3	2.89	0.25-33.48	0.396
No. of pregnancies	>3	48	17.4	Ref		
	3	68	23.9	1.93	0.82-4.52	0.130
	2	101	35.3	3.22	1.54-6.70	0.002
	1	67	23.4	2.29	1.04-5.05	0.040
Mode of transport	Bicycle	15	5.5	Ref		
	Walking	82	28.6	4.69	0.95-23.17	0.058
	Vehicle			6.87	1.38-34.28	0.019
	Motorbike			7.79	1.61-37.77	0.011
Time taken to health facility	<30 minutes	90	31.8	Ref		
	30-60 minutes	158	55.5	0.84	0.46-1.51	0.554
	1-2hrs	32	11.4	0.83	0.33-2.09	0.697
	>2hrs	4	1.4	N/A		
Residence	Town Centre	52	18.3	Ref		
	Slums	52	18.3	0.58	0.24-1.44	0.243
	Outskirts of town	57	20.6	0.67	0.28-1.58	0.356
	Rural	123	42.9	2.24	1.05-4.79	0.037
Religion	Protestant	134	47.2	Ref		

	Catholic	104	36.6	0.63	0.35-1.16	0.137
	Muslim	26	9.3	0.49	0.19-1.30	0.153
	Others (SDA)	20	6.9	0.16	0.04-0.63	0.008
Duration of visit	3 months	106	37.6	Ref		
	>3months	178	62.4	1.32	0.76-2.31	0.327
Cultural beliefs	No	266	93.2	Ref		
	Yes	18	6.8	0.74	0.26-2.11	0.572
Source of income	Salary	64	22.4	Ref		
	Business	125	43.4	0.95	0.37-4.35	0.468
	Remittances	44	15.5	1.13	0.47-2.71	0.793
	Farming	33	11.4	1.27	0.48-3.36	0.627
	Others	18	7.3	0.67	0.21-2.16	0.500
Monthly average income	<6000	154	53.9	Ref		
	>6000	130	46.1	1.03	0.60-1.77	0.916

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.2 Discussion

The findings showed that mothers aged between 30-39years reported being less satisfied with maternal, newborn and child health services relative to the other groups. Whereas evidence for the role of ageing as a determinant of differential healthcare access and use is still weak, certain studies have shown existing access related inequities largely attributable to the health systems resource constraints, receipt of inappropriate care and services orientations focus (Aboderin, 2010). However, other factors, such as ethical dimensions and need for personalized care have been shown to shape an individual's perspectives of service appropriateness or satisfaction. Hence, there is need to pay attention to the systems' responsiveness (also known as instrumental systems goals) to intrinsic expectations by users as they attend services (Evans, 2001). A study done in Ghana showed the age of expectant mother influences the utilization of ANC services whereby the older the expectant mother, the more likely she is to use antenatal care service (Akowuah, 2018). Findings of this study also showed mothers that had one and two pregnancies (para 1&2) were more likely to report being satisfied with maternal, newborn and child health services as compared to the para 3. A study done in Tanzania by Larson and others to investigate determinants of women's ratings of the quality of care during their most recent facility delivery demonstrated that a woman's expectations, prior and current experiences influence her perception of the quality of care she received (Larson, 2014). Kifle and colleagues have also shown women who had given birth six and more times are less likely to seek ANC service as compared to those with 1st pregnancy or those who had one child (Kifle, 2017). However, this may certainly vary according to the study design and/or context (Chakraborty, 2003).

This study findings showed that mothers residing in rural areas were more likely to report being satisfied with maternal, newborn and child health services as compared to those in Urban centers might indicate preference for being the main referral facilities for the rural folk, who frequently bypass the lower facilities, while urban dwellers have other options to compare with, consistent

with findings by Sun which showed that more than half of the rural residents preferred primary care facilities as their initial contact for medical care services as compared with the urban residents (Sun, 2019). Generally, the County Health referral system and linkages between the lower and higher levels of care are weak, consequently more patients seeking care bypass the lower level health facilities due to perceived lower quality services (KHSRS, 2014–2018)

Mothers who used a vehicle or motorbike to the health facility were more likely to be satisfied with maternal, newborn and child health services as compared to those who used bicycles to the health facility. A study carried out in Zambia demonstrated that poor means of transport, poor road conditions and lack of transport means to the health facilities may lead to delays in accessing healthcare services (Kyei, 2012), and in some occasions these delays has led to individual's mothers making a decision to delivery at home rather than in a health facility (Sacks, 2016).

5.2 Conclusion

This study has shown client satisfaction towards maternal, newborn and child health services in tier three public health facilities of Kisumu county vary differentially by socio-demographic and maternal factors. There is need for the health systems management to pay attention to service responsiveness to individual's sentient expectations and valuation of services they receive. Individuals at the tail-end of the reproductive age-groups also represent a high-risk group, and their low valuation or satisfaction with maternal newborn and child health services needs urgent attention.

5.3 Recommendations

1. Health facilities need to strengthen client feedback mechanisms.
2. The government should intensify its MNCH communication and advocacy strategies to reach older mothers, those with increased parity and mothers from urban areas to promote service access and utilization.
3. Concern stakeholders need to work on improving transport infrastructure to health facilities.
4. The results of the model can be used to provide insights for both micro- and macro-level planning of maternal child health service delivery.

REFERENCES

Aboderin, I. (2010). Understanding and advancing the health of older populations in sub-Saharan Africa: policy perspectives and evidence needs. *Public Health Reviews*, *32*(2), 357.

Akowuah, J. A., Agyei-Baffour, P., & Awunyo-Vitor, D. (2018). Determinants of antenatal healthcare utilisation by pregnant women in third trimester in peri-urban Ghana. *Journal of tropical medicine*, *2018*.

Al-Mujtaba, M., Cornelius, L. J., Galadanci, H., Erekaha, S., Okundaye, J. N., Adeyemi, O. A., & Sam-Agudu, N. A. (2016). Evaluating religious influences on the utilization of maternal health services among Muslim and Christian women in North-Central Nigeria. *BioMed research international*, *2016*.

Andersen RM., Rice TH, Kominski GF., Davidson PL. (2007). *Changing the US health care system: key issues in health services policy and management*. 3rd edn. San Francisco: Jossey-Bass, 2007:3–31.

Chakraborty, N., Islam, M. A., Chowdhury, R. I., Bari, W., & Akhter, H. H. (2003). Determinants of the use of maternal health services in rural Bangladesh. *Health promotion international, 18*(4), 327-337.

Cochran, W.G. (1977). *Sampling techniques (3ʳᵈ Ed.)*. New York: John Wiley & Sons.

Das, A., Gopalan, S. S., & Chandramohan, D. (2016). Effect of pay for performance to improve quality of maternal and child care in low-and middle-income countries: a systematic review. *BMC Public Health*, *16*(1), 321.

David, H., Peters, Garg, A., Bloom, G., Damian, G., Walker, William, R., Brieger., & Rahman, HM. (2008). *Poverty and Access to Health Care in Developing Countries.* DOI, *10* (1196), 1425.

Donabedian, A. (1980). *Explorations in Quality Assessment and Monitoring. The Definition of Quality and Approaches to its Assessment*, Vol. 1. Ann Arbor, MI: Health Administration Press.

Evans, D. B., Edejer, T. T. T., Lauer, J., Frenk, J., & Murray, C. J. (2001). Measuring quality: from the system to the provider. *International Journal for Quality in Health Care*, *13*(6), 439-446.

Ha, W., Salama, P., Gwavuya, S., & Kanjala, C. (2014). Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. *Social science & medicine*, *118*, 80-88.

Ibworo, V., Guyah, B., & Omondi, D. (2020). Healthcare structural factors that determine quality of Maternal, Newborn and Child Health services at tier 3 public health facilities of Kisumu county, Kenya. *International Journal of Healthcare Sciences* (1) 13-20.

Jalali-Farahani, S., Amiri, P., Bakht, S., Shayeghian, Z., Cheraghi, L., & Azizi, F. (2017). Socio-demographic determinants of health-related quality of life in Tehran lipid and glucose study (TLGS). *International journal of endocrinology and metabolism*, *15*(4), e14548. doi:10.5812/ijem.14548.

Kenya Demographic and Health Survey-KDHS. (2014). 2014 Demographic and Health Survey

Key Findings. Available at: dhsprogram.com/pubs/pdf/sr227/sr227.pdf

Kenya District Health Information System. *https://hiskenya.org/dhis-web-commons/security/login.action;jsessionid=9FAC310092C66453A459E06DF19CDB91.*

MoH. (2018). Kenya Health Sector Referral Strategy-KHSRS (2014–2018). Available at: https://www.measureevaluation.org/pima/referral-systems/referral-strategy-insert

MoH. (2018). Kenya Health Sector Strategic and Investment plan-KHSSIP 2014-2018. Available at: http://e-cavi.com/wp-content/uploads/2014/11/kenya-health-sector-strategic-investiment-plan-2013-to-2017.pdf

Kenyan Ministry of Health Division of Emergency and Disaster Risk Management-DRM (2014).

Kifle, D., Azale, T., Gelaw, Y. A., & Melsew, Y. A. (2017). Maternal health care service seeking behaviors and associated factors among women in rural Haramaya District, Eastern Ethiopia: a triangulated community-based cross-sectional study. *Reproductive health*, *14*(1), 6.

Kyei, N. N., Campbell, O. M., & Gabrysch, S. (2012). The influence of distance and level of service provision on antenatal care use in rural Zambia. *PloS one, 7*(10), e46475.

Larson, E., Hermosilla, S., Kimweri, A., Mbaruku, G. M., & Kruk, M. E. (2014). Determinants of perceived quality of obstetric care in rural Tanzania: a cross-sectional study. *BMC health services research*, *14*(1), 483.

Sacks, E., Vail, D., Austin-Evelyn, K., Greeson, D., Atuyambe, L. M., Macwan'gi, M., ... & Grépin, K. A. (2016). Factors influencing modes of transport and travel time for obstetric care: a mixed methods study in Zambia and Uganda. *Health policy and planning*, *31*(3), 293-301.

Sun X, Meng H, Ye Z, Conner KO, Duan Z, Liu D (2019) Factors associated with the choice of primary care facilities for initial treatment among rural and urban residents in Southwestern China. PLoS ONE 14(2): e0211984. https://doi.org/10.1371/journal.pone.0211984

WHO. (2015): *Trends in Maternal Mortality: 1990 to 2015,* WHO, Geneva.

WHO. (2016): *Standards for improving quality of maternal and newborn care in health facilities*, Geneva.

Yaya, S., Bishwajit G., & Gunawardena N. (2019). Socioeconomic factors associated with choice of delivery place among mothers: a population-based cross-sectional study in Guinea-Bissau. *BMJ Global Health,* 4:e001341.