

Original Research Article

Uptake of universal health coverage provided, maternal, neonatal and child health services, in Machakos County Kenya

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ABSTRACT

Background: The Universal Health Coverage (UHC) offers an essential package of health services to citizens while protecting them financially in case of an illness. It has been given a top priority globally as a health-related aim. In Kenya, whereas MNCH services have continued to attract investment over the years, reports still show high rates of maternal and child mortality. The study sought to assess the level of uptake of universal health coverage provided MNCH services and the associated factors.

Methods: This was a cross-sectional study undertaken in 422 households in Machakos Sub-County on women of reproductive age (WRA). The data was collected using questionnaires. Multiple logistic regression with ($p < 0.05$) at 95% CI was used for inferential statistics.

Results: The results show that all respondents had sought at least one MNCH service. Time taken to reach a health facility (OR 12.26; 95% CI 1.07 to 140.48) and feeling that a CHV could attend to them during an emergency (OR 4.14; 95% CI 1.23 to 13.91) were significant patient related factors. Supply side factors found to be significant were visit from a CHV (OR 125.93; 95% CI 18.37 to 863.27), feeling that services were of quality (OR 684.411; 95% CI 50.65 to 9248.93, adequacy of staff (OR 1.00; 95% CI 1.0004 to 0.021 and hospital commodities (OR 19.83; 95% CI 1.67 to 235.93). Demographic factors established to be significant were marital status, education level, occupation and monthly income.

Conclusions: Patient-related, supply-side and demographic factors had a significant influence on uptake of UHC provided MNCH services.

Keywords: MNCH, UHC, Uptake, WRA

INTRODUCTION

Universal Health Coverage (UHC) refers to how a range of health services are acquired by all people in need, without going through financial hardship when paying for the services. More so, UHC is considered across three large areas: the extent of financial protection, the population covered, and the range of services made available. Approximately 100 million people are driven into poverty while paying for their healthcare.¹ About one in two people in the world do not have full coverage of

essential health services, and about 930 million people, (12%) of the global population, spend more than a tenth of their household budget paying for healthcare services.²

Effective service provision requires financial resources for hospital processes, human resources and medical supplies. Health care financing in developing nations is supplied by a blend of external aid, governments and private spending. Generally, health financing is a major health care delivery barrier in low-income countries as

most families cater for a huge amount of healthcare spending in the sub-Saharan region.³

Daily, 800 women die during pregnancy and childbirth with 99% of deaths occurring in developing countries.⁴ More than 14 million infants did not receive pentavalent vaccine and 5.7 million infants are partially vaccinated.⁵ While 270 million WRA have an unmet need family planning (FP).⁶ In Kenya health care docket gets 6.7% of total government health expenditure yet Abuja

declaration recommends an allocation of 15%.⁷ Out of Pocket (OOP) account for 31% of health expenditure in Kenya considering it is a Lower middle-income country (LMIC) that is facing diminishing donor funding. Health insurance in the Machakos county is low at 19.7% yet, the county's catastrophic health expenditure (CHE) lies at 7.5% way above the national level which is at 6.2%. Additionally, the County did not meet the MNCH targets of 2020 as shown in Table 1.

Table 1: Machakos county RMNCH achievements.

Indicator	Machakos County RMNCH (MCIPD, 2018) (%)	Kenya RMNCAH investment framework ambitions (GOK, 2017) (%)
Skilled delivery	47.7	87
ANC visit	67.2	69
Fully immunized	70.4	76
Contraceptive use	68	73

METHODS

The study was conducted in Machakos sub-county (Figure 1) between years 2020-2023. Machakos sub-county is one of the eight sub-counties with a total of seven (highest) wards.⁸ The 2019 census indicated that Machakos sub-county population of WRA is 93,354 hence Fischers formulae was used to determine a sample size of 422 WRA. Stratified random sampling was used to sample 8 health facilities and 5 community units (CU) attached to these facilities.

The 422 sample size was then equally distributed among the 5 CU. The CU household register formed the

sampling frame. Every 2nd household that had a WRA that met the inclusion criteria was selected for the study. A cross-sectional study design was adopted and the study population comprised of WRA in a household. WRA included are those who had a child aged 0-48 months and had resided in the subcounty for at least 1 year. WRA excluded are those who didn't give consent. Quantitative data was collected using a researcher administered questionnaire on WRA. KIIs and FGDs were used to collect qualitative data from County health management officers (CHMT) and CHVs. A summary is outlined in Table 2. SPSS version 26 was used to analyse data whereas multiple logistic regression computed inferential statistics.

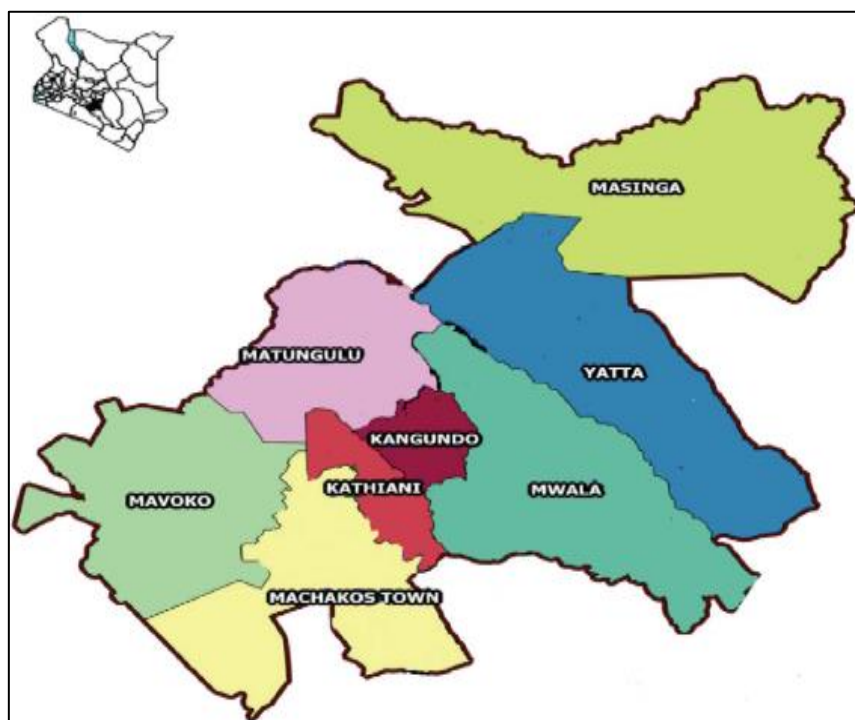


Figure 1: Map of Machakos county.

Table 2: Summary of sample size determination.

Specific objectives	Data collection tool	Sampling techniques	Target population	Sample size
To determine supply side factors influencing uptake of UHC MNCH services.	Questionnaire	Systematic random sampling	Beneficiaries (WRA)	422
	KII	Purposive sampling	CHMT.	5 Respondents
To investigate patient related factors influencing uptake of UHC MNCH services.	FGDs	Purposive sampling	CHVs	50 CHVS (10 from each CU) 5 FGDS
	Questionnaire	Systematic random sampling	Beneficiaries (WRA)	422
To determine the level of uptake of UHC MNCH services.	KII	Purposive sampling	CHMT	5 Respondents
To examine the challenges encountered when seeking UHC MNCH services.	KII FGD	Purposive sampling	UHC focal persons CHVS	5 respondents 50
	Questionnaire	Systematic random sampling	Beneficiaries (WRA)	422

RESULTS

Socio demographic characteristics

The median age was 28 years and 48.8% of the participants were below it. Majority were married

(70.9%) and more than half (51.4%) of the participants had completed secondary education. Formal employment among the participants stood at 30.6% and the predominant religion (95%) was Christianity. The median income of the participants was Ksh. 20,000 and 50.9% of the participants were above the median monthly income as demonstrated in Table 3.

Table 3: Demographic characteristics.

Characteristics	Count, N (%)
Age (years), Mean (SD)	28.94 (5.69)
Monthly Income (KSH), Median (SD)	20,000 (29760.54)
Marital status	
Never married	58 (13.7)
Married	299 (70.9)
Separated	48 (11.4)
Cohabiting	17 (4.0)
Education level	
Primary school incomplete	12 (2.8)
Primary school completed	20 (4.7)
Secondary school incomplete	22 (5.2)
Secondary school completed	217 (51.4)
College/University completed	151 (35.8)
Occupation	
None	90 (21.3)
Employed	129 (30.6)
Self-employed	158 (37.4)
Casual laborer	45 (10.7)
Religion	
Christian	401 (95.0)
Muslim	21 (5.0)
Visited a facility during UHC	
Yes	422 (100.0)
No	0 (0.0)

Level of uptake of MNCH services

Most of the respondents had sought at least one MNCH service as outlined in Table 4.

Table 4: Uptake of services.

Services	Count, N (%)
Overall uptake of MNCH services	422 (100.0)
Uptake of ANC services	411 (97.4)
Uptake of FP services	357 (84.6)
Uptake of Maternity services	420 (99.5)
Uptake of immunization services	422 (100.0)

Services sought

Uptake of services from KDHS 2023

From the findings the first ANC uptake increased by 0.2% from 5451 in 2018 compared to 5464 in 2019. Also noted was that the skilled deliveries in 2019 was higher (10329) compared to 2018 (9762) depicting a 5.8% increase. Modern FP methods scaled (25310) in 2019 as compared to (21788) in 2018 registering a 13.9% increase. The Pentavalent Immunization also had a higher uptake in 2019 (4302) as compared to 2018 (4228) showing a 1.7 % increase.

Uptake of ANC services

Majority, 97.4% of the women had sought antenatal care (ANC) services before delivery. About 38.4% had visited health facilities four times while only 4.1% had sought the ANC services once. Most (84.8%) WRA visited a GOK facility followed by private facility (14.5%) for ANC. A unique trend was observed when participants mostly considered closeness of the facilities when deciding where to seek services (39.1%), followed by affordability of services (28.4%) while quality of care came third (26.3%).

Uptake of maternity services

Majority, 99.5% of the women had utilized maternity services. Most sought the service from a GOK facility (89.5%), followed by private facility (10.5%). Affordability of services (51.0%) followed by proximity to the facility (30.7%) and then quality of care (13.1%) were reasons mentioned for seeking services in the facilities.

Whereas the quality of care was the most highlighted (50.0%) reason among those who sought services from the private facility, affordability (56.9%) was main reason for those who had sought services at GOK facilities. Various insurance covers helped pay delivery bills for 97.9% of those interviewed. UHC offset (56.4%) while NHIF took 28.2%. Linda mama and private accounted for 13.4% and 1.9% respectively.

Uptake of FP services

In regard to FP services, 84.6% of the participants said to have used FP since their last delivery. Of those who did not use FP services, majority (50.8%) lamented of the negative side effects as the main reason for not using while 33.8% did not see the need and 15.4% said to have been prevented from using by their husbands. Additionally, Depo provera was the most commonly used FP method (42.6%) followed by pills (26.9%). The results also show that most of the participants received their FP services in GOK facilities (78.7%), followed by private facilities (15.1%). Traditional birth attendant (TBA) and chemist accounted for 3.1% each.

Uptake of immunization services

Most (100%) of the participants had sought at least one immunization services. They sought the services majorly from GOK facilities (84.1%), followed by private facilities (15.9%). Closeness of the facility (35.8%) followed by affordability of services (34.1%) were the reasons for seeking services in the facilities they went to. A few (5.2%) of the participants had missed to take their child for the vaccination. Reasons for missing out included forgetfulness by the mother (45.5%), being busy at work (18.2%), not knowing importance (18.2%), transport issues (13.6%), and child illness (4.5%). About 6.9% of the participants said to have taken their children for vaccination past due date.

Descriptive statistics of factors influencing uptake of UHC MNCH services

Supply side factors

Most participants (93.6%) reported that both the hospital supplies and (94.3%) staff attending to the patients were adequate. In terms of services offered, 96.4% of the participants felt that the services met the standards. The results showed that 97.9% of the participants travelled for less than 5 kilometres to reach the health facility while 2.1% travelled for more than 5 kilometres to get to the health facility. Further, 32.9% of the participants said to have received a visit at their household from a Community Health Volunteer (CHV). A few, 27.7% of those interviewed said to have been referred to seek services in another facility. Most common reason for referral was so seek specialized services (36.85%), followed by lab (26.5%), maternal services and emergency accounted for 18.8% and 9.4% respectively while medication accounted for 8.5%. A small number (8.5%) of those that were referred used an ambulance (Table 5).

Patient related factors

Of those interviewed, 97.4% had heard about UHC. A high proportion (95%), however, had at least one insurance cover yet 35.5% of the participants said to have

spent from their pocket on MNCH services. Results show that the vast majority (92.9%) spent Ksh 100 or less to get

to the health facility and 65.2% took 10 minutes (Table 6).

Table 5: Descriptive analysis of supply side factors.

Variable	Count, N (%)
Hospital commodities and supplies were adequate	
True	395 (93.6)
False	27 (6.4)
The number of staff attending to you was adequate	
True	398 (94.3)
False	24 (5.7)
Did you feel that the services met the standards?	
True	407 (96.4)
False	15 (3.6)
Distance to health facility	
<5km	413 (97.9)
>=5km	9 (2.1)
Visit from CHV	
Yes	139 (32.9)
No	283 (67.0)
Referral to other facilities to seek services	
Yes	117 (27.7)
No	305 (72.3)
Services referred for	
Maternal services	22 (18.8)
Emergency	11 (9.4)
Lab	31 (26.5)
Specialized services	43 (36.8)
For medication	10 (8.5)
Did the services involve ambulance	
Yes	10 (8.5)
No	107 (91.5)

Table 6: Descriptive analysis for patient related factors.

Variable	Count, N (%)
Heard about UHC	
Yes	411 (97.4)
No	11 (2.6)
Did you spend from your pocket on MNCH services	
Yes	150 (35.5)
No	272 (64.5)
At least one insurance	
Yes	401 (95.0)
No	20 (5.0)
UHC registration	
Yes	317 (75.1)
No	105 (24.9)
NHIF registration	
Yes	200 (47.4)
No	222 (52.6)
Linda Mama registration	
Yes	335 (79.4)
No	87 (20.6)
Cost to health facility	
None	79 (18.7)
1-100	313 (74.2)

Continued.

Variable	Count, N (%)
101-200	16 (3.8)
201-300	14 (3.3)
Time to health facility	
10 minutes and below	275 (65.2)
11-30 minutes	145 (34.4)
31-60 minutes	2 (0.5)

ANC OOP

Variable	Count, n(%)
Are there services/products that you paid from your pocket during this time?	
Yes	110(26.8)
No	301(71.3)
Services paid for from OOP	
Lab services	96(87.2)
Medication	44(40.0)
Ultrasound	17(15.5)
Registration	5(4.5)
Ability to pay	
Completely	65(59.1)
partially	45(40.9)

Maternity OOP

Variable	Count, n(%)
Did you spend from your pocket on maternity services	
Yes	95(22.5)
No	325(77.4)
Services paid for from OOP	
Lab services	33(34.7)
Medication	51(53.7)
Ultrasound	7(7.4)
Registration	4(4.2)
Non-pharm	79(83.1)
Delivery	23(24.2)
Ability to pay	
Completely	72(75.8)
Partially	23(24.2)

Figure 2: Out of pocket (OOP) spending on MNCH services during UHC pilot.

FP OOP

Variable	Count, n(%)
Did you spend from your pocket on FP services	
Yes	136(38.1)
No	221(61.9)
Services paid for from OOP	
Purchase of method	73(53.7)
Purchase of method & insertion	63(46.3)
Ability to pay	
Completely	87(64.0)
Partially	49(36.0)

Ambulance OOP

Variable	Count, n(%)
Ambulance involved	
Yes	10(8.5)
No	107(91.4)
Ambulance paid for from OOP	
Yes	6(60)
No	4(40)

Figure 3: Out of pocket (OOP) spending on MNCH services during UHC pilot.

Those who incurred ANC OOP stood at 26.8% with most of it going towards lab (87.2%). WRA that spent from pocket during maternity were 22.6% and most of it went to non pharms (83.1%). FP had the highest OOP (38.1%) and most went to purchase method. Only 8.5% of those who were referred used an ambulance and 60% of them paid for the ambulance from their pocket. About 33.3% of

those who paid said to have been able to partially afford the service.

Slightly more than half (56.4%) of the participants felt that CHVS can be able to attend to them in case they had an emergency at home. For those who disagreed with the above statement, difficulty to reach them (29.3%) and

(28.8%) lack of medical training were their reason for disagreeing (Figures 2 and 3).

Challenges encountered when seeking MNCH services during UHC pilot

The results demonstrate that among those who reported challenges, majority (22.2%) lamented of healthcare workers' rudeness and registration errors (17.0%). Other notable challenges reported included perceived inadequate staff (16.5%), UHC was short term (16.5%), delayed services (5.7%), inadequate medical supplies (10.8%), long queues at UHC registration (11.3%).

Inferential analysis of factors influencing uptake of universal health coverage MNCH services

Table 7 shows the results of the multivariate logistic regression that tested the relationship between the utilization of UHC MNCH services and predictor factors (supply side factors, patient related factors and demographic factors).

Four supply side factors, were found to have a significant relationship with the dependent variable. They include

($p < 0.05$) staff attending to UHC clients are adequate, concurrence that on hospital commodities and supplies are adequate, received a visit from a CHV and feeling that services were of quality. The likelihood of attending MNCH services increased by 19.8-fold (OR 19.83; 95% CI 1.67 to 235.93) among women who agreed that hospital Commodities and Supplies are adequate. Those who received a visit from a CHV are about 126 times more likely to attend MNCH services as compared to those who did not receive a visit from CHV (OR 125.93; 95% CI 18.37 to 863.27).

For the patient related factors, two variables (time to reach facility and feeling that CHV can attend to you during emergency) had significant influence on the uptake of Universal Health Coverage MNCH services. Those who take between 11-30 minutes to reach the facility are 12.3-fold more likely to attend MNCH services as compared to those who take 10 minutes or less to get to the facility (OR 12.26; 95% CI 1.07 to 140.48). Those who felt CHV can attend to them during emergency are 4.1 time more likely to be attending MNCH services in comparison to those who don't feel that CHV can attend to them during emergency (OR 4.14; 95% CI 1.23 to 13.91).

Table 7: Multi variate logistic regression of determinants of utilization of UHC maternal services.

	Odds ratio	Std. error	[95% conf. interval]	
Supply side factors				
Staff attending to UHC clients are adequate				
No	Reference			
Yes	1.003*	1.003	1.0004	0.021
Referred to seek services				
No	Reference			
Yes	0.678	0.476	0.171	2.686
Hospital commodities and supplies adequate				
No				
Yes	19.826*	25.051	1.666	235.93
Received a visit from CHV				
No	Reference			
Yes	125.929*	123.683	18.370	863.267
Felt services were of quality				
No	Reference			
Yes	684.411*	909.202	50.646	9248.925
Patient related factors				
At least one insurance				
No	Reference			
Yes	2.448	1.865	0.550	10.899
Out-of-pocket spent on MCH				
No	Reference			
Yes	0.479	0.341	0.119	1.934
Time to facility				
10 mins and below	Reference			
11-30 mins	12.260*	15.255	1.070	140.476
Felt CHV can attend to you during emergency				
No	Reference			

Continued.

	Odds ratio	Std. error	[95% conf. interval]	
Yes	4.137*	2.559	1.231	13.906
Demographic factors				
Marital status				
Never married	Reference			
Married	0.333	0.329	0.048	2.301
Separated	0.013*	0.025	0.0003	0.537
Cohabiting	0.001*	0.001	0.0000	0.038
Education level				
No formal schooling	Reference			
Primary school completed	7.674	11.499	0.407	144.711
Secondary school incomplete	0.032*	0.043	0.002	0.440
Secondary school completed	0.006*	0.006	0.001	0.039
Occupation				
None	Reference			
Employed	0.083*	0.090	0.010	0.693
Self-employed	13.077*	11.330	2.394	71.443
Casual laborer	6.824	7.108	0.886	52.555
Religion				
Christian	Reference			
Muslim	3.241	3.506	0.389	27.010
Monthly income				
1-10000	Reference			
10001-20000	0.014*	0.016	0.001	0.142
20001-30000	207.942*	423.892	3.826	11301.18
30001-40000	18.282*	21.664	1.792	186.515
40001-50000	3.473	4.546	0.267	45.189
Over 50000	1.109	1.514	0.076	16.105
Constant	0.053	0.107	0.001	2.831

Lastly, with regard to the demographic factors four factors marital status, education level, occupation and monthly income had a significant influence on the uptake of Universal Health Coverage MNCH services ($p < 0.05$). The results show that averagely high income earners are more likely to attend MNCH services as compared to those who earn less than Ksh. 10,000 a month.

DISCUSSION

Results from the study indicate that UHC provided MNCH services were well utilized with all participants having reported they utilized at least one MNCH service. This can be attributed to the affordability of the services in the face of UHC. These finding is consistent with research conducted in India which depicted that the overall uptake of a completely free MNCH scheme was optimum at 100.0%.¹⁰

The study reveals that most clients sought ANC services during UHC. This scenario is similar to what was observed during free maternity policy that saw an increase in ANC attendance as outlined in a Kenyan study.¹¹ Majority had attended four ANC visits. The most preferred facilities were the government owned, the most common reason outlined for this scenario was that the facilities were close.

The data suggested that maternity services were well utilized and this is in line with a study in Nepal by that recorded an increase in institutional deliveries after introduction of free delivery care.¹² Respondents sought the services mostly from government facilities and outlined affordability as the key driver for seeking services from this provider The most famous reason for choosing private facility was that respondents felt services were of quality. Most WRA outlined that insurance helped them offset the delivery bill and UHC was the most popular insurance implying that OOP costs were reduced.

Majority of the participants reported to have used FP since their last delivery. Of those who did not use FP services, they lamented of the negative side effects and spousal objection as the main reasons for not using. Depo provera was the most popular while natural method was least popular family planning method. These findings are consistent with a study in Ethiopia.¹³ Most respondents had sought FP services from a GOK facility. The main reasons for choosing GOK facilities over private were due to closeness of the facility and affordability of services.

Findings indicate that immunization utilization was close to optimal level. Uptake of birth BCG and polio was good

and this is consistent with research conducted in China by which indicated that BCG and polio vaccinations at birth were 92.0 per cent.¹⁴ At 6, 10, 14 weeks, another finding revealed that the vaccination rate of pentavalent, OPV, PCV vaccine and rotavirus vaccine was high but uptake other vaccines like measles declined at 9 and 18 months. Few children missed or went for immunization late and the leading reasons were identified as forgetfulness of mother followed by transport issues. The results of this study are similar to research conducted in Kiribati which pointed out that the majority of mothers cited forgetfulness as the main cause for not visiting hospital for immunization as scheduled.¹⁵

For the supply side factors influencing uptake of UHC provided MNCH services, most participants felt that the hospital commodities and supplies were adequate. The likelihood of attending MNCH services increased by 19.8-fold among women who agreed that hospital commodities and supplies are adequate. The results are similar to research conducted in Ethiopia which found out that the availability of the lifesaving MCH supplies and commodities was high which was linked to adequacy of budget.¹⁶ Moreover, the findings highlighted that most of the respondents indicated that the hospitals had adequate staff. Participants that felt that staff attending to them are adequate were slightly (1.003 times) more likely to attend MNCH services compared to those who disagreed. However, this is contrary to a study conducted in South Sudan that found out inadequacy of staff in MCH was a major barrier in provision of quality services.¹⁷ The differences between the two findings could be attributed political instability in South Sudan hence health worker recruitment may not be a priority. Further most study participants felt that services were of quality. Respondents that felt that services were of quality were more likely to attend MNCH services compared to those who disagreed. Less than half of WRA reported to have received a visit from a CHV. Those who received a visit from a CHV were (125.929 times) more likely to attend MNCH services as compared to those who did not receive a visit from CHV. A small percent travelled more than 5 KM to get to the facility and slightly above a quarter were referred elsewhere for services. Specialized services followed by lab services were the most common reasons for referral. The results of this study are similar to research conducted in India by which indicated that managing patients in hospitals remain a challenge even after UHC implementation because some of the hospitals have well equipped infrastructure as compared to others which necessitate referrals.¹⁸

Looking at the patient related factors that influence uptake of UHC MNCH services. Findings indicated that nearly all respondents had heard about UHC while less than a quarter reported to have spent from their pocket on MNCH services. The finding is similar to research conducted in Bangladesh which found out that patients who used UHC were able to reduce household OOP spending on health especially among persons from lower

socio-economic level.¹⁹ This also implies that despite the MNCH services being deemed as free in Kenya and there being UHC, OOP still persisted. Close to all participants spelt out that they had at least one insurance with UHC and Linda Mama being the most popular. However, research conducted in Kenya by revealed that in 2015-2016, the proportion of persons with health insurance coverage (NHIF) was 19%.²⁰ The difference between the latter study and this study could be attributed to the fact that the research was completed through review of grey literature and did not involve interview of research participants. A study conducted in Homa Bay county discovered that the coverage of Linda mama was at 13.0% while NHIF SUPA cover was at 21.7%.²¹ Most of respondents spent less than 100 kshs and slightly above half took less than 10 minutes to get to a health facility. This can be attributed to a good facility density and hence accessibility of health facilities. Those who take between 11-30 minutes to reach the facility are more likely to attend MNCH services as compared to those who take 10 minutes or less to get to the facility. When seeking ANC services less than half of respondents reported to have incurred OOP and this went mostly to carter for lab services. Ultrasound services came in second last yet the service is usually not free in the Kenyan MNCH set up. More than a quarter were unable to fully meet the OOP cost. About half of the interviewed WRA said that they incurred OOP when seeking delivery services. The findings of this study are consistent with a study in Myanmar by that discovered that 75% of females made OOP payments for MNCH for delivery.²² Most the finances were used on non-pharmaceuticals products and medication. Close to a quarter were not able to fully afford the cost. Above a half of those interviewed paid OOP on FP and most of it went to procure the method. The results are consistent with research in Kenya by that discovered that 51.1 per cent of the respondents obtained affordable contraceptives because some of them were free of charge.²³ More than a quarter of the respondents were unable to fully afford the cost. Of the few that were referred elsewhere more than half paid OOP for ambulance. The findings of this study are similar to a study conducted in Burkina Faso which indicated that women seeking maternal health care services were forced to pay out of pocket for ambulance transport between health care institutions.²⁴

As regards to community health volunteer services, close to half of respondents felt that CHVs could not attend to them in case of an emergency and the most popular reason outlined for this was that CHVs lacked medical training. Those who felt CHV can attend to them during emergency are more likely to be attending MNCH services vis-a-vis to those who did not feel that CHV can attend to them during emergency. The findings are similar to research conducted in Kisumu County which found out that CHVs were grappling with a wide range of challenges which included lack of medical training.²⁵ The study revealed that none of the participants we aware of the next CHV visit.

The leading challenges when seeking MNCH services outlined were health worker rudeness and registration errors. The above-mentioned challenges could be attributed to the increased demand for services. The findings of this study are similar to research conducted in Bangladeshi which found out that UHC is faced with different challenges such as human resources issues, lack of empowerment and demand-side barriers.²⁶

Study limitations are that the study was limited to Machakos Sub-County due to cost and time constraints. The data collected was used to inform associations, not causality. Another foreseen limitation was that the researcher would encounter the challenge of hiring qualified research assistants; thus, the medical students from KMTC undergoing training to cut down on costs.

CONCLUSION

Utilization of the four MNCH services was above the WHO recommendations. Family planning remained the least utilized service as per the study findings. Government facilities were more preferred compared to the private facilities. Four socio-demographic factors marital status, education level, occupation and monthly income had a significant influence on the uptake of universal health coverage MNCH services. Supply side factors found to be significant include staff attending to them were adequate, hospital commodities and supplies being adequate, received a visit from a CHV and feeling that services were of quality. Two patient related factors, time to reach facility and feeling that CHV can attend to them during emergency had significant influence on the uptake of Universal Health Coverage MNCH services.

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Ethical approval: Not required

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