Original Research Article

Unmet HIV/AIDS Services Needs amongst Adolescent and Children in Kenya

Maureen Atieno Adoyo[1], George Ochieng Otieno[2], Charles Omondi Oyaya[3]

[1]Postgraduate Student, [2]Lecturer,
Kenyatta University Nairobi Kenya
[3]Executive Director, International Development Institute- Africa (IDIA), Nairobi, Kenya

Corresponding Author: Maureen Atieno Adoyo

ABSTRACT

World Health Organization advocates for provision of comprehensive HIV/AIDS service package in uninterrupted manner according to client needs overtime including their network. High Income Countries recognizes that integration is the most logical way to organize health care services while Low Income Countries still experience delays in access to care. Therefore, this study aimed to establish the implementation status of services integration in different facilities of Kenya. The study adopted a descriptive cross-sectional study design. Both probability and non-probability sampling techniques were used. A total of 597 adults and 212 children were respondents either directly or indirectly after the consenting and assenting process. A Semi structured, interviewer administered questionnaire was used for data collection. SPSS Ver. 21 software used to generate descriptive statistics and measure of correlation coefficient used to test relationships between variables. Results indicated that majority of the facilities had more than one services with most scoring above 60 percent in utilization of the available services, hard to reach are as lagged in healthcare services utilization, integration status varied across facilities and had significant influence on quality of HIV/AIDs services at 95% C.I.;β 0.22; p-value 0.00. The study concluded that HIV cases were high among adolescents and young adults as reflected by high response rate while children had low representation due to social orientation and services organization at point of care. Therefore, the study recommends restructuring and scaling up of investments on Youth Friendly Services at the same time considering reinvention in strategies for pediatric ART programming.

Key words: HIV/AIDS, Integration, Healthcare, Adolescent, Children, Kenya.

INTRODUCTION

Kenya Aids Strategic Framework (2014-2018) outlines the need to maximize efficiency in service delivery through integration and creation of synergy among HIV prevention and treatment programmes. The basic feature of an integrated and effectively operating healthcare institution, is one with the ability to maximize the delivery of a range of medical, and preventive interventions such as counselling and testing (CT), Prevention of Mother to Child Transmission (PMTCT), Maternal Child Health (MCH), Family Planning (FP), Anti-Retroviral Therapy (ART), Control of Tuberculosis (TB) and other Sexually Transmitted Infection (STI) services. The basic feature of this package of services was co-location or single point services entry. [1]

Previously, Kenyan health systems had HIV and primary care co-located and it basically involved sharing of clinical space, pharmacy, laboratory, information system; and health education/promotional services. Evidence w available from studies done in sub-Saharan Africa indicate that co-location

maximizes use of available infrastructure and results to improved access and efficiency in service delivery of HIV/AIDs care. Despite the evidence suggesting system-wide and nationwide attempts to implement integration framework, patients and service level effects of integration still remain unclear. [2] The assumption of integration framework is that the overall benefits of services integration should trickle down from providers to patients, which in turn may initiate reorganization of service delivery that has the potential of impacting on patients' satisfaction and health outcome in short term and long term respectively.

Comprehensive care centers (CCC) have been in existence and undergone evolution while earning recognition that it is the most logical way to organize health systems without compromise to universal access to a broad range of services, the only missing link about integrated service is the actual model describing how integrated services looks like. [3] The literature reviewed focused on comprehensive care as an approach to scale up access to ART rather broader aspects of quality improvement in healthcare services that is patient centered. Ongoing reforms in services delivery takes into consideration needs and preferences of individual patients. For example, a patient centered health system has been designed based on information gathered from the population on healthcare expenditure and utility of healthcare services. Demographics characteristics of a population are additionally factored in as drivers of changes in systems and service provision. [4]

The government of Kenya has invested enormously on health and particularly HIV/AIDs since, the declaration of HIV/AIDs as a national disaster in December, 1999.Like any other investment the government needed to realize the returns. The recommendation from the study has the potential of providing strategic direction in HIV/ AIDS programming for effective and efficient utilization of scarce resources while realizing economic gain of the public investment. This study aimed at looking at different models of comprehensive care centres and establishes if any the unmet client needs.

MATERIAL AND METHODS

Study design: A descriptive study design was adopted given the necessity to conduct retrospective and rapid analysis of comprehensive care centres arrangements. The study utilized both qualitative and quantitative approach to data collection for purposes triangulation

Study location: Kenya is one of the six "high burden" countries in Africa with an estimated HIV prevalence of 6percent, translating to about 1.6 million people living with HIV infection. Larger percentages of mortalities are attributable to high HIV burden. When these mortalities are segregated by age structure and population characteristics of interest, annual overall adult death constitute 29 percent, maternal death contribute to 20 percent of the total deaths, and children under five give a turn over proportion of 15 percent of the total deaths. The HIV scourge has negatively affected the country's economy by lowering capital output with a margin of 4.1percent and the new infection outpacing the existing HIV cases. The study focused on five Counties in Kenya with unique profile in relation to HIV. [5]
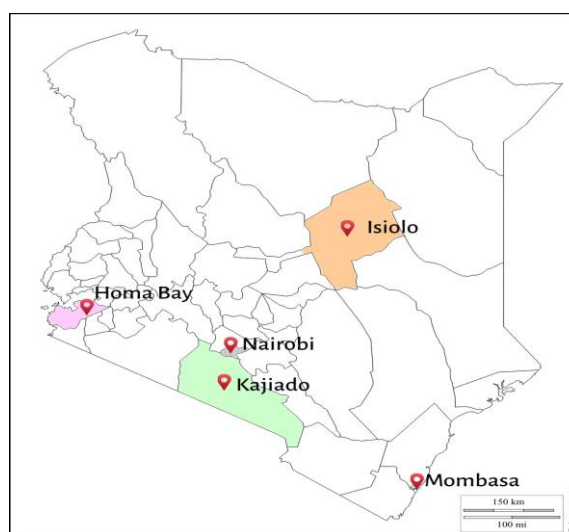

Figure 1: Map of Kenya showing study sites

Sampling procedure

Those targeted as respondents were CCC clients both children and adults within facilities located in the selected counties of Kenya. Both probability sampling procedure used to identify target respondents.

A Cochran formula was deemed appropriately, given the study design and parameters that were available. Proportion of those who were eligible and enrolled for treatment and care was approximately 30 % [6,7]

$$n= \frac{Z^2P(1-P)}{e^2}$$

Where: -

n = sample size,

Z^2 = abscissa of the normal curve that cuts off an area at the tails (1 – equals the desired confidence level, e.g., 95%) The value for Z was found in statistical tables, which contained the area under the normal curve (1.96)

e= desired level of precision (0.05)

p = estimated proportion of an attribute that was present in the population i.e. 30%

$$n= \frac{1.96^2 0.3(1-0.03)}{0.05^2}$$
$$= 447.16224$$

To cater for attrition or none response the sample size was adjusted by 10%, thus the ultimate sample size was 491.8

Approximately 492 children
Same formula applied yielded approximately668 adults on treatment and care

The obtained sample was the proportionally distributed to the selected sample thereafter simple random technique to identify respondents within facilities in study sites. See table 1

Table 1: Proportionate Distribution of sample based on County Prevelence Ranking

	County	Prevalence (%) x	Children n_1 X/N* n_1	Adults n_2 X/N* n_1
1	Homabay	25.7	261	354
2	Mombasa	7.4	75	102
3	Nairobi**	6.8	69	93
4	Kajiado	4.4	45	61
5	Isiolo	4.2	42	58
	TOTAL N	48.5	492	668

Ethical consideration

Minor Participants: Young people aged between (14-18) who did not wish to involve their parents and they had sufficient maturity to understand the nature, purpose and likely outcome of the proposed research were counselled by a nurse dedicated for the study in each of the facility. The minors were then interviewed independently after parent/guardian provided full assent to participate in research. Guardian/ parents with Children under 14years were incorporated to participate in the research on behalf of the children after signing informed consent.

Voluntary participation and Withdrawal: The researcher acknowledged that participation in any research activity was voluntary for all who qualified to participate. Patients were free to leave the study anytime they felt uncomfortable without any penalties or loss of any benefits to which they were entitled to them in the hospital.

Data collection: A structured questionnaire was administered after due process of consenting had been done. An Open Data Kit (ODK) facilitated gathering of information about services delivery Interviews were scheduled every day of the week except for weekends during clinic hours between 9. 00a.m to 2. 00p.m for a minimum period of one (1) week and maximum of two (2) weeks. The prolonged duration ensured good response rate and to allowed an opportunity for completion of repeat interviews.

Statistical Analysis: SPSS version 21 was used for analysis to carry descriptive analysis expressed as percentages and frequencies which was thereafter presented in form of tables, graphs, and charts

RESULTS

The study targeted a total of 668 adults and 492 children. However, only 597 adults and 212 children participated in the study contributing to 89% and 45% respectively. Generally, response for adults were higher compared to children with

Homabay leading at 97% and lowest in Kajiado at 76%. Children response were below average in all study sites with Homabay leading at 49% and lowest in Isiolo at 5%. The average response rate for both categories of respondents was 54(67%). See table 2.

Table.2 Primary Targeted Response Rate

County	Category	Sampled Size	Respondents Interviewed	Percent Response
Homabay	Children (<19)	237	117	49%
	Adults	329	318	97%
Mombasa	Children (<19)	78	40	51%
	Adults	103	92	89%
Kajiado	Children (<19)	48	20	42%
	Adults	68	52	76%
Nairobi	Children (<19)	64	33	52%
	Adults	105	84	80%
Isiolo	Children (<19)	41	2	5%
	Adults	63	51	81%
Total	**Children (<19)**	**468**	**212**	**45%**
	Adults	**668**	**597**	**89%**

In a combined response of both adult and children, the results in Table 3 below showed that females were many 516(63.8%) compared to their male counterpart. Further analysis of these primary respondents, results indicated that majority were reestablishing adults of age above 46 years, followed by settler adults and young adults at 12.2% and 12.1% respectively. Early Adolescent of age between 11-15 years had uniquely high response rate of 10.6% compared to other categories of adolescent aged between 16 to 20 years and late adolescent of age between 21-25 years. The other category of interest were children between ages 0-5 years and 6-10 years who similarly had marginal percentage response rate of 3.2 and 6.9 respectively.

Table.3: Response rate

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	293	36.2
	Female	516	63.8
Total		**809**	**100**
Age (Years)	Children (0-5)	26	3.2
	Older Children (6-10)	56	6.9
	Early Adolescents (11- 15)	86	10.6
	Adolescents (16-20)	52	6.4
	Late Adolescents (21-25)	53	6.6
	Early Adults (26-30)	94	11.6
	Young Adults (31-35)	98	12.1
	Settler Adults (36-40)	99	12.2
	Midlife Transition adults (41-45)	92	11.4
	Restablizing Adults (46+)	153	18.9
Total		**809**	**100**

Results in Table 4 below showed availability of more than one services offered at Comprehensive Care Centres (CCC). On average availability of family planning (FP) services was approximately 60%, Mombasa had the highest proportion in availability of FP services at 86% and least was Nairobi with 20%. Nutrition had an average availability at 60% and highest in Mombasa with approximately 91% while the least was Isiolo county with 25%. Level of availability of psychosocial support was generally high with 60% average having Isiolo on the lead at 100% and least in Nairobi with 60%. ART average was above average at 53% and highest in Mombasa at 65% and least in Isiolo at 10%. Opportunistic Infection Prophylaxis (OIs. Prop.) was average at approximately 50%, highest in Mombasa at approximately 73% and lowest in Kajiado at about 13%

Table 4: Comprehensive care services

County	FP	Nutrition	PSYCHO SUPPORT	ART	OIs Prop.	MCH	FANC/ PMTCT	ASRH	HTC
Homabay	69.8%	41.9%	96.8%	51.7%	52.0%	48.3%	50.1%	93.4%	93.6%
Mombasa	85.6%	90.6%	72.4%	65.2%	72.9%	68.5%	63.5%	79.6%	80.7%
Nairobi	19.6%	76.8%	60.1%	48.2%	32.7%	17.9%	17.9%	60.1%	72.0%
Kajiado	23.8%	46.0%	90.5%	52.4%	12.7%	14.3%	12.7%	87.3%	81.0%
Isiolo	75.0%	25.0%	100.0%	10.0%	60.0%	45.0%	25.0%	90.0%	75.0%
Average	59.5%	60.0%	83.3%	53.0%	49.8%	43.8%	42.9%	82.8%	84.8%
N=809									

Data below in Table 5 showed that overall, 92% of the cases needed a referral. Of the cases that need referral, approximately 88% needed specialized care. Referral needs were highest in Mombasa at about 99% and lowest in Isiolo at 70%.

Table 5: Referral and specialized care needs

N=809	Need a referral to another facility?	Are there specialists you need for any of your condition?
County		
Homabay	87.50%	88.90%
Mombasa	98.90%	96.70%
Nairobi	96.30%	91.10%
Kajiado	95.20%	73.00%
Isiolo	70.00%	40.00%
Average	**92.00%**	**88.60%**
Facility Level		
Health Centre	90.6%	82.4%
Sub County Referral Hospital	92.6%	91.2%
Average	**92.0%**	**88.6%**

Table 6: Opinion rating on quality of care

N= 809 County	Patient flow - Waiting time n=809			Options of care available %	Availability of follow up mechanism %	N= 30					
						ART enrollment			Adherence Status		
	Excellent <15 Min	Good 6-30 min%	Fair 31 - 45 min%			Improved %	Stable %	low	Improved %	Stable %	Low %
Homabay	-	43	57	100	100	28.6	71.4	0.0	0.0	100.0	0.0
Mombasa	17	83	-	100	100	83.3	16.7	0.0	83.3	16.7	0.0
Kajiado	38	50	13	88	100	37.5	62.5	0.0	50.0	37.5	12.5
Nairobi	40	60	-	100	100	80.0	20.0	0.0	60.0	20.0	20.0
Isiolo	-	75	25	-	75	50.0	0.0	50.0	75.0	0.0	25.0
Total	20	60	20	96	96	53.3	40.0	6.7	50.0	40.0	10.0

To establish relationship between healthcare package and quality of healthcare services, regression modelling was run. The analysis utilized Coefficient Correlation range of -1 to +1, where r =1, it indicated a perfect negative or inverse relationship i.e. increase in one variable causes decreases in another and when r =0, it was an indication of no relation and where r =+1, it was an indication of perfect relation between the variables.

Logistic regression analysis for independent variables used in the model with the dependent variable being the treatment success or effectiveness. Prior to the multivariate analysis, a univariate trial between each of the independent variables was carried out with the dependent variable. Only the significant variables in the univariate results found their way into multivariate. Results revealed that competency of health care workers (β0.086, P-value 0.022), responsiveness of health care workers to requests from patients (β0.096, P-value 0.018), contact time with doctor (β0.050, P-value 0.002), diagnostic process (β0.124, P-value 0.029), as well as the staff attitude (β0.039, P-value 0.047). However, convenience in check-up booking, waiting time, and administrative procedures (β0.024, P-value 0.552) together with convenience in using medical services, such

as laboratory tests (β0.024, P-value -0.55) and availability of health care services

(β0.041, P-value 0.297) were insignificant at 95% C.I See Table 7

Table 7: Regression Model – Relationship between integration implementation status and quality of care

Modelling/Regression Results									
Coefficients[a]									
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	1.167	.209		5.582	.000	.756	1.578		
Quality of HIV/AIDS services received	.222	.042	.181	5.330	.000	.140	.304	.928	1.078
Convenience in check-up booking, waiting time, and administrative procedures	.011	.038	.011	.287	.774	-.064	.086	.744	1.344
Convenience in using medical services, such as laboratory tests etc.	.024	.040	.026	.595	.552	-.055	.102	.551	1.814
Competency of health care worker	.086	.033	.113	2.646	.008	.022	.150	.582	1.719
Availability of health care services	.041	.040	.045	1.043	.297	-.036	.119	.580	1.724
Responsiveness of health care workers to requests	.096	.041	.100	2.372	.018	.017	.176	.601	1.664
Contact time with doctor	.157	.050	.144	3.117	.002	.058	.256	.498	2.006
Diagnostic Process	.124	.048	.117	2.578	.010	.029	.218	.515	1.941
Staff attitude	.124	.039	.137	3.155	.002	.047	.201	.565	1.769

a. Dependent Variable: treatment effectiveness
b. Predictors: (Constant), Quality of HIV/AIDS services received, Convenience in check-up booking, waiting time, and administrative procedures, Convenience in using medical services, such as laboratory tests etc., competency of health care worker, availability of health care services, responsiveness of health care workers to requests, contact time with the doctor, diagnostic Process, Staff attitude

DISCUSSION

The analysis of respondents' characteristics is considered as critical component that shapes the designing and reorganization of healthcare services while attempting to meet client needs and overall quality as guided by the World Health Organization (WHO). Adults were easily accessible compared to children. The researcher therefore draws speculation that children remain underserved despite huge investments in peadiatric HIV/AIDs treatment and care. Cultural barriers leading to stigmatization and possibly child survival rates are some of the other contributing factors towards marginal reporting among children. This study is in concurrence with Kenya Demographic Survey that implies that the probable chance of childhoold death is higher among some population compared to others. [8] Numbers of reported children partcipants varied among Counties, For example Homabay experienced significantly higher numbers compared to Garissa. Further analysis of significant factors that may have led to low reporting among children catergory points out that parents fear to expose children to formal line of treatment due to social orientation.other studies in HIV context done in Kenya suggests that stigma is key in shaping amost all aspects of HIV/AIDs treatment and care; including non adhearance, non disclosure of status to children and overall access to care. [9]

This study demonstrated that health seeking behaviors among female was positive on the higher side compared to their male counterparts, derivative from gender analysis indicated more (63.8 percent) female against male respondents. High response rate among female is arributable to that fact HIV/AIDs prevelence is high among women. A contemporaneous survey in Kenya region showed that other than

increase in uptake of HIV/AIDS related service across gender. However,women had higher percentage increase in uptake particularly in HIV counseling and testing services from 29 percent to 53 percent while male percentage increase from 23 percent to 46 percent. [8]

Emerging trends indicated that restablizing adults (46 years and above) had majority representation and so the belief that HIV/AIDs prevelence among this population segment is high, a fact that can be contested due to aggregation of this particular age catetegory with higher age groups therefore defying de facto age distribution of five years.Nevertheles, the young adults and setttler adults of ages 31-35 and 36-40 years had significant participation that mirrors their larger proportion contribution to the prevelence of HIV/AIDs. The other category that could be a large contributor to the prevelence are early adults and early adolescent between ages (26-30) and (11-15) years. In concurrence that infection are high among youth population is the study counduted in Kenya which recognizes the inclusion of young people in response to tackle new infection and stigma among youth. [10]

Kenyan population is youthfull, a description that is eloborately depicted by the age structure on population pyramid. This explains active sexual life but also improved survival among different population segments due to positive gains in treatment and care. Further,the two categories of settler and young adults are supposedly in marriage, A study in a similar context indicates median age for marriage as 20.2 years for women while for men was 25.3 years.The narrative urguably place marriage as a key risk factor in HIV infection more so amongst women involved in early marriages. On contrary, other studies decribe HIV has complex interaction with other social cultural factors that needs to be under stood when designing HIV/AIDs intervention programmes. [11]

Comprehensive care is a reality across Counties and in most health facilities in kenya. Overall, the facilities that were selected for the study reported offering most of the essential healthcare services needed by clients registered under comprehensive care unit, thus the integrated and comprehensive services concept is inline with WHO integration policy and guidelines developed by advocates of holistic care and case management of affected and infected persons. The approach to service provision in most Kenyan facilities were found to be focusing on majorly clinical care and psychological and socio-economical support. The most sought for service was family planning(FP) with an overall average of 60 percent with Mombasa on the lead at 86 percent and Nairobi had the least utility of family planning services. These findings give indication that most clients under CCC had desire to control fertility consequently other studies showed a trend in unmet need for FP for HIV-infected clients, partcicularly women. [12] Hence, the need to scale up efforts to expand access to contraceptive methods and take into consideration HIV positive women's reproductive intentions. Low utilization of family planning in Nairobi, according to the researcher could be attributed to the fact that sizeable proportion of residents have disposable income and can therefore access FP commodities or services over the counters and in private facilities. Alternatively, urban dwellers in Nairobi may in most cases find health seeking at public facilities cumbersome as the the social environment is economic driven. A study with contrary trend showed that Nairobi, like other urban regions has a higher utilization of FP services compared to counties such as Kajiado and Isiolo.the study further affirms that contraceptive use in urban areas remain high and the gap widens primarily in rural which are hard to reach and tradional cultural practices are deeply rooted. [13]

Nutrition service utilization was found to be higher in Mombasa and least in Isiolo, like other healthcare services, accessibility or uptake of nutrition services

is believed to be influenced by culture and geographical factors that determine acceptability. It is the expectation that Isiolo would have the highest nutritional need to match high nutritional uptake particularly northern part given the harsh climatic condition. [14] Nevertherless, this study showed different trend in nutrition service utilization.

Indepth analysis of psychosocial support services in which linkages for treatment and social support structure are made to work, is well utilised in Isiolo with highest figure of 100Percent and least utilised in Nairobi at 60 percent. Culture and characteristics of those who seek for care has direct relationship with uptake of psychosocial support. Isiolo having tightly bound community with strong cultural ties enable infected and affected group develop ties to support individuals as along as the myth about afficlition debunked and clearly understood, at another angle Nairobi population may not be utilising psychosocial support fully given the multi-dimensional cultural systems and most of population is gainfully engaged economically. [5,14] A study of similar opinion done in western kenya suggests those who seeked for psychosocial support were primarily unemployed at 70Percent, unemployment or lack of economic engament is common phenomena in rural areas like Isiolo compared to cities such Nairobi. [15]

The overal number enrolled for ART was above average, the region with gihest prevelence of HIV/AIDS- Homabay reported the highest enrolment of ART. Mombasa and Nairobi areas representing urban areas and key population followed with 62 and 48 percent respectively. Isiolo a transport corridor and culturaly bound community reported the least enrolment of 10Percent. Orientation in this study was concurrence with report drawn from routine data analysis in mozabique rural health facilities which reiterates that ART are largely available in urban settings in comparison to rural set up where progress

for treatment expansion was much slower. [16] Opportunistic Infection Prophylaxis followed similar tendency of high utilization in urban area compared to rural, Mombasa had the highest utilization of 73Percent and lowest in Kajiado at 13Percent. Services utilization such FP 63Percent, nutrition 61Percent, OIs 84Percent and MCH 86Percent seemed to be mostly utilized in Sub-county referall facilities, mainly because of availability of specialized personel, healthcare commodities in addition to expansive catchment population as compared to health centers. Against this background, health centers still experienced high utilzation of basic HIV services such as ART, ASRH and HTC.Notwithstanding the evidence on availability of these services, this study highlighted gaps in provision of specialized care in both sub-county facilities and health centers. Majority 92Percent of the patients interviewed needed linkage to the next level of care. Higher levels of care showed stability with fewer referrals and improved quality of as the resources became available. Government and county allocation differ across the level of care and is mainly based on workload and proportion of fund collection from each facility not forgetting overall limitation of resources. In reference to this background trainings and leakages established enabled facilities across the region to be better able to offer services. [1] A study conducted in Homabay-Kenya affirms the fact that integration is a strategy through with resources are leveraged and has the potential to improve care for people living with HIV using already existing structures without development of new one. This would be achievable by facilities voluntarily giving information of services being provided by other facilities and bringing these facilities to plan and monitor services jointly. [17]

The parameters used to measure quality in this study were satisfaction with patient flow and treatment options. Patients' rating on satisfaction with flow at the clinic areas rated at 80 percent as either good or excellent and 96 percent for availability of

treatment option. To affirm quality of services, other parameters such as patient follow up mechanism, ART enrolment levels and adherence measured based on health worker perspective. Follow up mechanism, ART enrolment and adherence recorded as above average with ratings of 96, 53 and 50 percent respectively. However, segregated analysis indicated that counties had varied level of responses on quality of care. The researcher believes that the variations were determined by level at which care was sought for and institutional arrangements including availability or limitation of resources. This phenomena is similar to one described in another study and it implies that the implementation of I health service integration policy and other health system modifications are more ritualist in response to institutional demand and so the difference in hospitals advancing substantive changes towards achievement of quality care. [18]

Logistic regression analysis identified five variables significantly related to quality of care. Patient centeredness approach had significant effect on quality of care measured by responsiveness of health care workers to requests from patients, contact time with doctor and diagnostic process with p-values of 0.018; 0.002; 0.010 respectively at 95 percent C.I. These results demonstrated that facilities made clinical decision based on patient values to achieve patients' satisfaction and ultimately achieve quality. [19] Efficiency of care measured by convenience in check-up booking, waiting time, administrative procedures, and convenience in using medical services such laboratory failed to demonstrate any significance relationship with patients' satisfaction or quality of care. However, it has been documented that a well designed and implemented healthcare system has immense potential in cautioning patients and their network from socio economic catastrophe while attempting to access services. [3]

A competent health worker with the right attitude is a key factor in reducing health related complication resulting from medical errors and negligence. This study demonstrated significance of the relationship between treatment effectiveness and health worker competency or attitude with p- values of 0.008 and 0.002 at 95 percent. Effectiveness were expressed in terms of patient outcomes related to improved numbers of patients knowing their HIV status, accessing care and have their viral load suppressed to minimum level possible

CONCLUSION AND RECOMMENDATION

Overall, the study concludes that there are unmet needs among children under 10years, adolescents and young adults. the study observed high numbers of HIV infection among adolescent and young adults proximately by their high response compared to other age groups while children had low representation against their estimated prevelence. Therefore, to reach maximum attainable quality standards in delivery of HIV/AIDs and related services there is need to restructure and scale up investment on Youth Friendly Services so to ensure full functionality of these structures with the ability to maximally cater for the growing needs particularly, early adolescents without excluding other categories of adolescent. Additionally, there is need to reinvent strategies and programming paediatric ART to cater for children Population who remain underserved despite high reported prevalence and huge investment on paediatric care.

REFERENCES

1. National Aids Control Council. Kenya Aids Strategic Framework. Ministry of Health Kenya [Internet]. 2015; Available from: http://nacc.or.ke/wp-content/uploads/2015/09/KASF_Final.pdf

2. Odeny TA, Penner J, Lewis-Kulzer J, Leslie HH, Shade SB, Adero W, et al. Integration of HIV Care with Primary Health Care Services: Effect on Patient Satisfaction and Stigma in Rural Kenya. AIDS Res Treat [Internet]. 2013 [cited 2017 Apr 8];2013:485715. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23738055

3. World Health Organization. Integrated health services – what and why？ Tech Br. 2008;(1):1–8.

4. Dale Compton W, Ganjiang G, Reid PP, Grossman JH. Building a Better Delivery System: A New Engineering/Health Care Partnership [Internet]. Building. 2005 [cited 2016 Sep 7]. 276 p. Available from: http://www.nap.edu/catalog/11378.html

5. National Aids Control Council. Kenya HIV County Profiles 2016 i. 2016; Available from: http://nacc.or.ke/wp-content/uploads/2016/12/Kenya-HIV-County-Profiles-2016.pdf

6. Charan J, Biswas T. How to Calculate Sample Size for Different Study Designs in Medical Research? [Internet]. Vol. 35, Indian journal of psychological medicine. 2013. p. 121–6. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3775042&tool=pmcentrez&rendertype=abstract

7. National AIDS and STI Control Programme. Kenya AIDS Indicator Survey 2012: Final Report. 2014; Available from: http://www.nacc.or.ke/images/documents/KAIS-2012.pdf

8. Demographic Health Survey K. Kenya. 2014; Available from: https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf

9. Mchenry MS, Nyandiko WM, Michael L, Fischer LJ, Mcateer CI, Aluoch J, et al. HHS Public Access. 2017;16(3):215–25.

10. National AIDS Control Council. Kenya AIDS Response Progress Report Progress towards Zero. Nascop, Minist Heal Gov Kenya. 2014;(March):37.

11. Mkandawire-Valhmu L, Wendland C, Stevens PE, Kako PM, Dressel A, Kibicho J. Marriage as a risk factor for HIV: Learning from the experiences of HIV-infected women in Malawi. Glob Public Health [Internet]. 2013 Feb 1;8(2):187–201. Available from: https://doi.org/10.1080/17441692.2012.761261

12. Ngugi E, Kim A, Nyoka R, Ng'ang'a L, Mukui I, Ng'eno B, et al. Contraceptive Practices and Fertility Desires Among HIV-Infected and Uninfected Women in Kenya: Results From a Nationally Representative Study. J Acquir Immune Defic Syndr. 2014;66(Suppl 1):S75–81.

13. Juma P, Mutombo N, Mukiira C. Women's attitudes towards receiving family planning services from community health workers in rural Western Kenya. Afr Health Sci [Internet]. 2015;15(1):161. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4370145&tool=pmcentrez&rendertype=abstract

14. County Government of Isiolo. Republic of Kenya Isiolo County County Intergrated Development Plan. 2013 [cited 2017 Apr 18]; Available from: https://roggkenya.org/wp-content/uploads/docs/CIDPs/Isiolo-County-Integrated-Development-Plan_CIDP_2013-2017.pdf

15. Shacham E, Reece M, Ong'or WO, Omollo O, Monahan PO, Ojwang C. Characteristics of Psychosocial Support Seeking During HIV-Related Treatment in Western Kenya. AIDS Patient Care STDS [Internet]. 2008;22(7):595–601. Available from: http://www.liebertonline.com/doi/abs/10.1089/apc.2007.0213

16. Moon TD, Burlison JR, Blevins M, Shepherd BE, Baptista A, Sidat M, et al. Enrolment and programmatic trends and predictors of antiretroviral therapy initiation from President's Emergency Plan for AIDS Relief (PEPFAR)-supported public HIV care and treatment sites in rural Mozambique. Int J STD AIDS [Internet].

2011 Nov [cited 2018 Mar 22];22(11):621–7. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22096045

17. Lahariya C. The state of the world population 2007: unleashing the potential of urban growth. Indian Pediatr. 2008;45(6): 481–2.

18. Ferlie B. Ewan and Shortell M. Stephen. Improving the Quality of Health Care in the United Kingdom and the United States: A Framework for Change. Milbank Q. 2011;79(2).

19. Memc CL. Understanding patient-centered care, consumer involvement & patient self-management. Leadership. 2007; (December):2–4.

How to cite this article: Adoyo MA, Otieno GO, Oyaya CO. Unmet HIV/AIDS services needs amongst adolescent and children in Kenya. Int J Health Sci Res. 2018; 8(7):234-244.

******