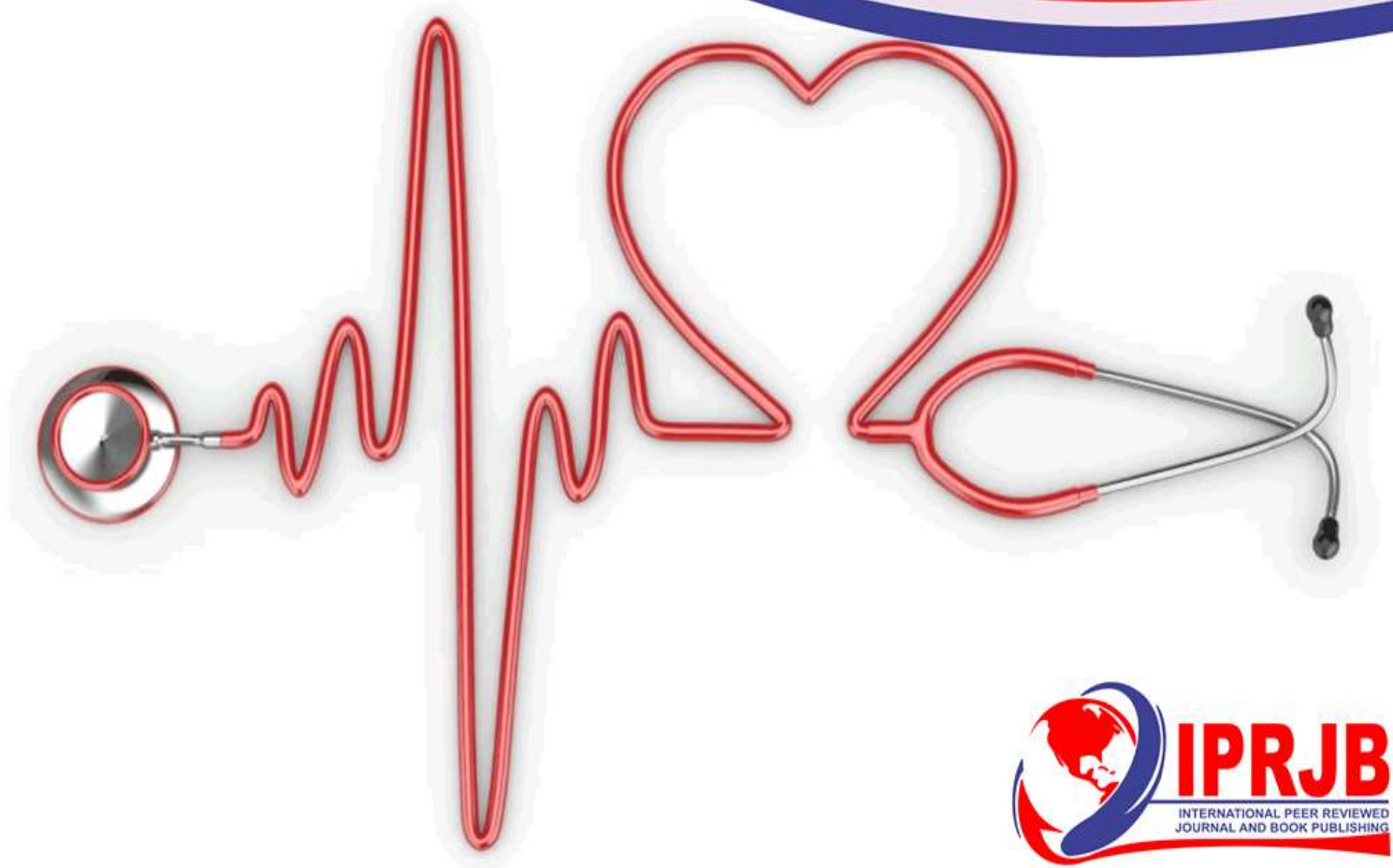


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**Medical Appointment Adherence and Challenges Encountered by HIV Infected
Children at Kenyatta National Hospital, Kenya**

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Medical Appointment Adherence and Challenges Encountered by HIV Infected Children at Kenyatta National Hospital, Kenya



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Abstract

Purpose: The goal of this study was to determine the adherence and challenges to scheduled medical appointment on HIV care services among HIV positive children aged 18 months to nine years undergoing treatment at Kenyatta National Hospital, Kenya at six months interval

Methodology: The study design was prospective cohort study design consisting of 221 caregivers and their HIV infected children. Consecutive sampling method was used, in which potential participants were sought out on a daily basis until we had contacted all the eligible individuals and enrolled them. This research was undertaken from March, 2017 to November, 2018. The study participants each was followed for period of one year. Pretested questionnaire was used for collecting data together with review of standardized clinical notes on challenges and adherence to scheduled medical appointments. Data was analyzed using statistical package for the Social Sciences (SPSS) Version 20. The descriptive statistics were done and data was presented in frequency tables. Ethical approval no P688/09/2016) was obtained.

Findings: It was observed that adherence to scheduled medical appointment among children infected with HIV ranged from 77% to 81.9% at 6 and 12 months respectively. This study found an average of 20% of children infected with HIV are at high risk of adverse outcomes related to non-adherence to planned medical appointments. The observed difference on adherence was associated with financial constrain, perceived stigma and discrimination, long distance and long waiting period in the medical HIV clinic.

Unique Contribution to Theory, Practice and Policy: Targeted intervention aimed at addressing measures to reduce children missing attendance of scheduled medical appointment is vital. The health care providers may address measures to reduce children missing attendance of scheduled medical appointment by reducing waiting time in the clinic and reducing the number of scheduled medical appointments. This study adds to the pool of knowledge that stigma and discrimination, long waiting time in the clinic and the number of scheduled medical appointments has influence on adherence to appointments. The attendance of scheduled medical appointment should be enhanced in the policies by Ministry of health and HIV health care providers focusing on reducing waiting time, mitigating stigma and discrimination.

Keywords: Children, HIV, Adherence, Medical Appointment

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INTRODUCTION

Worldwide adherence to regular medical clinic appointments in human immunodeficiency virus (HIV)-infected children has been observed to correlate with positive clinical outcomes. In Kenya despite strategies in place, HIV infected children miss attendance of scheduled medical appointments. Globally, multiple studies have pointed out that 25 to 44% of children living with HIV misses attendance of scheduled medical appointments in many developed countries (Brennan *et al.*, 2010). The adherence to scheduled medical appointment is defined as a child not missing any scheduled medical appointments (Horstmann, 2010; Mugavero, 2010). The study done by Walburn *et al.*, (2012) on HIV clinic attendance at USA found out that majority of patients attended 76% of their scheduled medical appointments. Study by Braistein *et al.* (2011) found that children's adherence to regular HIV medical clinic attendance was higher in the first 12 months, with around 82% adhering to visits, but adherence dropped to approximately 61% by 6 months. HIV studies done regionally found out that adherence to regular medical appointments among the HIV infected children in HIV program is a significant factor in improving their health outcomes (Schneiderman *et al.*, 2016., Wachira *et al.*, 2012).

Children infected with HIV who struggle to adhere to planned medical appointments suffer an increased risk of opportunistic infections, AIDS-defining illnesses, and mortality. (Nijhawan *et al.*, 2016; Mugavero *et al.*, 2010). Regular attendance at a medical HIV clinic provides HIV-infected children with the chance to receive early treatment for HIV-related illnesses, resulting in decreased sickness and death rates (Mwiti *et al.*, 2020b). Bastard *et al.* (2012) discovered that when patients miss clinic appointments, it raises concerns about their likelihood of failing to adhere to their therapy. Child caregivers encounter various obstacles, including the caregivers' attitudes and financial difficulties, which impact the adherence of HIV-infected children to their planned medical appointments (Mwiti *et al.*, 2023b; Nijhawan *et al.*, 2016). Research conducted by Horwood *et al.* (2010) revealed that when caregivers of children perceive a low degree of stigma and discrimination and positive attitudes from healthcare staff, they are more inclined to comply with scheduled medical appointments for their HIV-infected children. Horwood *et al.* (2010) observed that couples who provide mutual assistance in caring for their children are more likely to follow scheduled medical appointments, resulting in improved outcomes for HIV treatment (Mwiti *et al.*, 2020). In Kenya despite many strategies put in place on adherence to scheduled medical appointment many children miss attendance of HIV medical appointments. Therefore this study aimed to determine the adherence and the challenges associated with adherence of HIV infected children on scheduled medical appointments.

LITERATURE REVIEW

Conceptual Framework

This research study conceptual framework was based on the integration of the social ecological model (McLeroy *et al.*, 1988) which points out that person behavior is influenced at multiple levels, including the intrapersonal, interpersonal, organizational, community and policy levels. The complexities of these interactions on these levels are very important in defining determinants of children caregivers ensuring their children are adhering to the scheduled medical appointments. This study will focus on the challenges associated with adherence of HIV infected children on scheduled medical appointments. The association between independent variables, social economic status; transport cost, time constrain, distance to clinic

and psycho social support (family support, stigma).Scheduling of appointment, waiting time in clinic.

Research Gaps

There is limited published studies regarding medical appointment adherence and the difficulties faced by HIV-infected children who are receiving care at Kenyatta National Hospital, Kenya. In Kenya despite many strategies put in place on adherence to scheduled medical appointment many children miss attendance of HIV medical appointments. Therefore this study aimed to determine the adherence and the challenges associated with adherence of HIV infected children on scheduled medical appointments.

Independent variable

Dependent variable

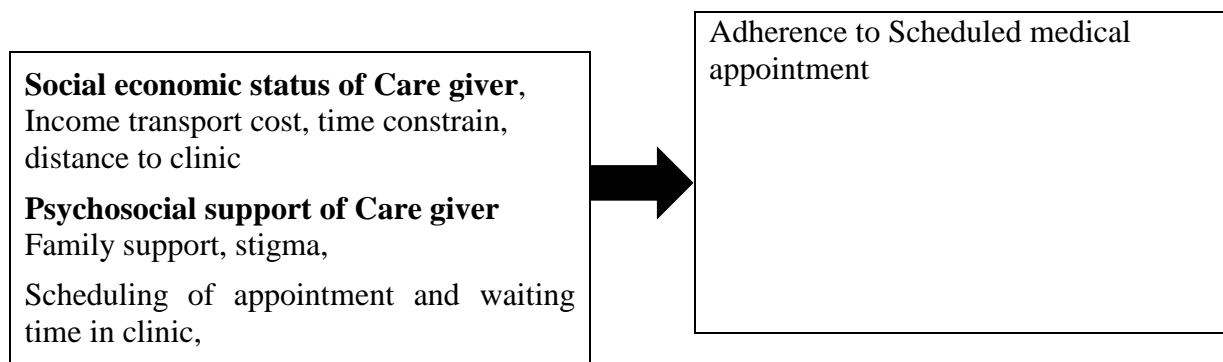


Figure 1: Conceptual Framework

Conceptual Framework

This conceptual framework Figure 1 shows the relationship between dependents variable and independent variables. The dependent variable was adherence to scheduled medical appointment while independent variables was social economic status; transport cost, time constrain, distance to clinic and psycho social support (family support, stigma).Scheduling of appointment, waiting time in clinic.

METHODOLOGY

Research design: The study design was a prospective cohort that sought to evaluate adherence of children on HIV care to medical appointments over 12 months period.

Setting: The research took place from March 2017 to November 2018 at the Comprehensive Care Centre of Kenyatta National Hospital. Each participant in the study was monitored for a full year. Pretested questionnaires and reviews of standardized clinical notes on caregiver challenges and patients' adherence to medical appointment schedules were the basis of this study's data collection.

Study population: The study included 221 children with HIV ranging in age from 18 months to nine years old. All of the children were receiving treatment at the Comprehensive Care Centre at KNH, Kenya, and they had been attending their medical appointments regularly for the past six months. Written informed consent was voluntarily provided by their primary care giver.as well as assent from older children. Children on transit or with life-threatening illnesses who needed hospitalization at the time of recruitment were not included in this study. Consecutive sampling method was used, in which potential participants were sought out on a

daily basis until we had contacted all of the available, eligible individuals and had them enroll in the study. This process continued until the targeted sample size was reached. The children's caretakers willingly completed the informed consent form. Data collection for this research was authorized by the Kenyatta National Hospital / University of Nairobi Ethical Review Committee, under approval number P688/09/2016.

Variables: The study independent variables were; the caregiver's income, social economic position, cost of transportation, time constraints, and distance to the clinic. Support for the caregiver's psychosocial needs; stigma, family support, making an appointment and waiting in the medical facility. Adherence to scheduled medical appointments, which was defined as children who didn't miss any of their scheduled appointments, was the outcome variable.

Data sources/ measurements: Pretested questionnaires and reviews of standardized clinical notes were used to gather information on caregivers' challenges during the follow-up research period and about their adherence to planned medical appointments. This study all eligible participants were enrolled to participate in this study.

Statistical analysis: Quantitative variables were analyzed using statistical package for the Social Sciences (SPSS) Version 20. The descriptive statistics were done on both medical appointment adherence and challenges encountered by HIV infected children. The data was presented in frequency tables. The reference of analyzed data is the Jomo Kenyatta University of Agriculture and technology repository (Mwiti *et al.*, 2023).

RESULTS

Participant Demographics

This study found out that male was 113 (51.1%) slightly higher than female, Majority of the children 142 (64.6%), had been on HIV care for at least three years. Mothers were the main care givers of the children 165 (74.7%) (Table 1).

Table 1: The Demographic Profile of the Research Participants

Children characteristics	Frequency	Percentage (%)
Gender		
Male	113	51.1
Female	108	48.9
Duration the children had been on HIV care		
<1 year	26	20.9
2 years	52	23.6
3 years	46	20.9
4 years	16	7.3
>5 years	80	36.4
Relationship of caregiver with children		
Parent mother	165	74.7
Parent father	29	13.1
Grandmother	6	2.7
Aunt	9	4.1
Uncle	1	0.5
Brother/Sister	2	0.9
Other relative	2	0.9
Foster care	7	3.2

Scheduled Medical Appointments among Children during Study Period

The initial number of HIV-infected children who were enrolled and took part in this study was 221. After six months, the number decreased to 217, and at the end of the 12-month study period, it further decreased to 216. In the course of the study, children had medical appointments booked at the comprehensive care center, with the number of appointments ranging from one to five or more. The majority of children had two appointments scheduled at six months, with 163 (75%) attending, and at 12 months, with 175 (81%) attending for follow-up. This study revealed that a small number of children had visits planned more than five times at both six months (2.3%) and twelve months (2.3%) correspondingly, as shown in Table 2.

Table 2: Scheduled Medical Appointments among Children during Study Period

Number of Medical appointments scheduled	Baseline (n =221)		At 6 months follow up (n =217)		At 12 months follow up (n =216)	
	n	%	n	%	n	%
One	2	0.9	9	4.1	4	1.9
Two	6	2.7	163	75.1	175	81.0
Three	18	8.1	32	14.7	27	12.5
Four	145	65.6	8	3.7	5	2.3
>5	50	22.6	5	2.3	5	2.3

HIV Infected Children Adherence to Scheduled Medical Appointments

The study found that the rate of HIV-infected children adhering to their planned medical appointments was 77% (167) initially, and increased to 81.9% (177) at both the 6-month and 12-month marks of receiving care (Table 3).

Table 3: HIV Infected Children Adherence to Scheduled Medical Appointments

Medical appointment scheduled missed	Baseline (n =221)		At six months follow up (n =217)		At 12 months follow up (n =216)	
	n	%	n	%	n	%
1	44	19.9	43	19.8	35	16.2
2	10	4.5	7	3.2	4	1.9
None	167	75.6	167	77	177	81.9

Challenges Faced by Care Givers on Making Sure Their HIV Infected Children are Adhering to Scheduled Medical Appointments

This study found out that the main challenges faced by caregivers in ensuring their HIV infected children are adhering to scheduled medical appointments are; perceived stigma 47 (21.8%), financial burden 59 (27.3%), long distance, 59 (27.3%) and lengthy waiting time 33(15.3%). (Table 4).

Table 4: The Challenges Encountered by Care Givers on Ensuring Their HIV Infected Children are Adhering to Scheduled Medical Appointments

Challenges encountered by care givers	baseline		at 6 months		at 12 months	
	n	%	n	%	n	%
Different appointments dates for children and caregivers	3	1.4	4	1.8	1	0.5
Lengthy waiting time	42	19.0	33	15.2	33	15.3
Long Distance	51	23.1	40	18.4	59	27.3
Frequent clinic attendance	7	3.2	8	3.7	1	0.5
Finance burden	53	24.0	67	30.9	59	27.3
Family conflict	3	1.4	9	4.1	7	3.2
Perceived stigma	34	15.4	36	16.6	47	21.8
Male partner support	17	7.7	8	3.7	1	0.5
Forgetfulness of appointment date	8	3.6	6	2.8	5	2.3
Perception of child health	3	1.4	5	2.3	3	1.4
Religious Belief	0	0	0	0	0	0

Discussion

This study revealed that HIV-infected children demonstrated adherence to scheduled medical appointments at varying time intervals, with adherence rates of 77% (167) and 81.9% (177) at six months and one year of care, respectively. The findings are comparable to that of a study done in USA on HIV clinic attendance which found out the majority of patients attended 76% of their planned sessions (Walburn *et al.*, 2012). The study done by Braistein *et al.*, (2011) found that the adherence rate of children on regular HIV clinic attendance is higher in the first 12 months about 82% and reduces to about 61% at month 60. A study conducted by Mwititi *et al.* (2023) shown that consistent attendance at clinics for HIV care is crucial for achieving favorable clinical results in the treatment of HIV among children. Failure to attend regular medical clinic sessions increases the likelihood of developing AIDS-defining illness, opportunistic infections and increasing mortality in children (Nijhawan *et al.*, 2016). Regular attendance at an HIV medical clinic provides children with the chance to receive early treatment for HIV-related illnesses, resulting in decreased rates of sickness and death (Mwititi *et al.*, 2020b). HIV-infected children who fail to attend their planned clinic visits may consequently lose the chance to refill their medications, resulting in the omission of their antiretroviral treatments. The assessment of irregular attendance of clinics by HIV-infected children can be used as a means to identify those who require more intensive adherence counseling (Chalker *et al.*, 2010). A study conducted by Fox and Rosen (2015) in industrialized countries revealed a significant correlation between low clinic attendance and high mortality rates. Research conducted by Bastard *et al.* (2012) identified that HIV-infected children who fail to attend clinic appointments have a high likelihood of experiencing viral failure.

Consistent attendance at HIV clinics is crucial for extending lifespan and improving the overall well-being of individuals with HIV/AIDS (Horstmann *et al.*, 2010). McHugh *et al.* (2017) found a direct correlation between the frequency of missed clinic appointments and the pace of disease development. A failure to attend a scheduled medical clinic appointment should raise concerns regarding patients who may be at danger of discontinuing their HIV care (Mwititi *et al.*, 2021). Children often fail to attend medical clinics because they rely on their caregivers to

bring them to their planned appointments (Schneiderman *et al.*, 2016). This study found out that the challenges of finances, long distance and perceived stigma and lengthy waiting time were associated with increase of non-adherence to scheduled medical appointments. Consistent result findings were found by Nijhawan *et al.* (2016) who pointed out that caregivers are faced by financial challenges, long distance and lengthy waiting time Fox and Rosen (2015) and perceived stigma (McHugh *et al.*, (2017).

The strength of this study was that there was fully participation of the respondents at comprehensive care centre, Kenyatta National Hospital. All HIV care was conducted in accordance with established standards of clinical practice. Comprehensive care centre at Kenyatta National Hospital receives referrals patients from all counties in the country who mostly are very sick requiring admission and specialized care leading to prolonged duration of recruitment of participants. This study found out that adherence to scheduled medical appointments among children living with HIV may be enhanced in the policies by Ministry of health and HIV health care providers focusing on reducing waiting time, mitigating stigma and discrimination and reducing the number of scheduled medical appointments among stable children.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The research finding was that adherence to scheduled medical appointment among children infected with HIV ranged from 77% to 81.9% at 6 and 12 months respectively. This difference on adherence is affected by financial constrain, perceived stigma and discrimination, long distance and lengthy waiting period in the medical HIV clinic. This study found an average of 20% of children infected with HIV are at high risk of adverse impacts linked to non-adherence to scheduled medical appointments.

Recommendations

Targeted intervention aimed at addressing measures to reduce children missing attendance of scheduled medical appointment is vital. The health care providers may address measures to reduce children missing attendance of scheduled medical appointment by reducing waiting time in the clinic and reducing the number of scheduled medical appointments among children. This study adds to the pool of knowledge that stigma and discrimination, long waiting time in the clinic and the number of scheduled medical appointments has influence on adherence to scheduled medical appointments among HIV infected children. The attendance of scheduled medical appointment among children living with HIV should be enhanced in the policies by Ministry of health and HIV health care providers focusing on mitigating stigma and discrimination, reducing waiting time and the number of scheduled medical appointments among children.

REFERENCES

- Bastard, M., Pinoges, L., Balkan, S., Szumilin, E., Ferreyra, C., & Pujades-Rodriguez, M. (2012). Timeliness of clinic attendance is a good predictor of virological response and resistance to antiretroviral drugs in HIV-infected patients. *PLoS One*, 7(11), e49091.
- Braitstein, P., Songok, J., Vreeman, R., Wools-Kaloustian, K., Koskei, P., Walusuna, L., ... & Yiannoutsos, C. (2011). 'Wamepotea'(They have become lost): Outcomes of HIV-positive and HIV-exposed children lost to follow-up from a large HIV treatment program in western Kenya. *Journal of acquired immune deficiency syndromes (1999)*, 57(3), e40 – e64.
- Brennan, A.T, Maskew, M, Sanne, I, & Fox, M.P. (2010). The importance of clinic attendance in the first six months on antiretroviral treatment: a retrospective analysis at a large public sector HIV clinic in South Africa. *J Int AIDS Soc.* 13, 49
- Chalker, J., Wagner, A., Tomson, G., Laing, R., Johnson, K., Wahlström, R., & Ross-Degnan, D. (2010). Urgent need for coordination in adopting standardized antiretroviral adherence performance indicators. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 53(2), 159-161
- Fox, M. P., & Rosen, S. (2015). Systematic review of retention of pediatric patients on HIV treatment in low and middle-income countries 2008–2013. *AIDS*. 29, 493–502.
- Horstmann, E., Brown, J., Islam, F., Buck, J., & Agins, B.D., (2010). Retaining HIV-infected patients in care: Where are we? Where do we go from here? *Clin Infect Dis.* 50(5), 752-761.
- Horwood, C., Voce, A., Vermaak, K., Rollins, N., & Qazi, S., (2010). Routine checks for HIV in children attending primary healthcare facilities in South Africa: attitudes of nurses and child care-givers. *Soc Sci Med.*70, 313–320
- Mugavero, M.J., Davila, J.A., Nevin, C.R., & Giordano, T.P. (2010). From access to engagement: measuring retention in outpatient HIV clinical care. *AIDS Patient Care STDS.* 24(10), 607-613
- McHugh, G., Simms, V., Dauya, E., Bandason, T., Chonzi, P., Metaxa, D., ... & Ferrand, R. A. (2017). Clinical outcomes in children and adolescents initiating antiretroviral therapy in decentralized healthcare settings in Zimbabwe. *Journal of the International AIDS Society*, 20(1), 21843
- McLeroy, K.R., Bibeau D., Steckler, A., & Glanz, K., (1988). An ecological perspective on health promotion programs. *Health Educ Behav.* 15(4), 351–377
- Mwiti P.K., Magu D., Opondo E., Mutai J., (2020). Social Demographic Factors Associated With Retention to Scheduled Medical Appointment among HIV Infected Children Attending HIV Care Services at Kenyatta National Hospital, Kenya. *International Organization of scientific research (IOSR) Journal of Nursing and Health Science (IOSR-JNHS)*, 9(01), pp. 55-60.

- Mwiti P.K., Magu D., Opondo E., Mutai.J., (2020b). Association Between Child Clinical Characteristics And Retention To Scheduled Medical Appointment Among HIV Infected Children Aged 18 Months To Nine Years Attending HIV Care Services At KNH, Kenya; *International Journal of Scientific and Research Publications (IJSRP)* 10(04) (ISSN: 2250-3153), DOI: <http://dx.doi.org/10.29322/IJSRP.10.04.2020.p10093>
- Mwiti P. K., Magu.D.G., Chelogoi.E., (2021). Factors associated with adherence to scheduled medical appointment among HIV infected children attending HIV Care services at Kenyatta National Hospital, Kenya. *International Journal of Scientific Research and Engineering Development-* Volume 4 Issue 5, Sep- Oct 2021 Available at www.ijsred.com
- Mwiti P.K., Magu D., Opondo E., Mutai J.,(2023). Thesis on determinants of adherence to scheduled medical appointments among HIV infected children aged 18 months to nine years receiving care at Kenyatta National Hospital, Kenya. Publication by Jomo Kenyatta University of Agriculture and Technology
- Mwiti P.K., Magu D., Opondo E., Mutai.J., (2023b). Care Givers Perceptions Associated With Adherence to Scheduled Medical Appointments Among HIV Infected Children Aged 18 Months to Nine Years Receiving HIV Care Services at Kenyatta National Hospital, Kenya. *International Journal of Scientific and Research Publications*, Volume 13, Issue 4, April 2023 16 ISSN 2250-3153 DOI: 10.29322/IJSRP.13.04.2023.p13604 <http://dx.doi.org/10.29322/IJSRP.13.04.2023.p13604>
- Nijhawan, A., Liang, Y., Vysyaraju, K., Munoz, J., Ketchum, N., Buchberg, M., ... & Taylor, B. (2016). Missed Initial Medical Visits in Two Urban HIV Clinics in the South. In *2016 Annual Research Meeting*. Academy Health.
- Schneiderman, J. U., Smith, C., Arnold-Clark, J. S., Fuentes, J., & Kennedy, A. K. (2016). Pediatric return appointment adherence for child welfare-involved children in Los Angeles California. *Maternal and child health journal*, 20(2), 477-483
- Wachira, J., Susan, E., Vreeman, R., & Braistein, P. (2012). Factors underlying taking a child to HIV care: Implication for reducing loss to follow up among HIV- infected and – exposed children. *Journal of Social Aspects of HIV/AIDS*, 9, 1. /
- Walburn, A., Swindells, S., Fisher, C., High, R., & Islam, K. M. (2012). Missed visits and decline in CD4 cell count among HIV-infected patients: a mixed method study. *International Journal of Infectious*