*Original Research Article*

Healthcare WORKERS FACTORS contributiing to HIV testing SERVICE INTEGRATION in PRIMARY HEALTHCARE FACILITIES OF HOMA BAY County WESTERN KENYA

**ABSTRACT**

**Introduction**: HIV Testing Service Integration refers to the process of embedding HIV testing and related services into the existing healthcare systems and other service delivery platforms. This approach ensures HIV testing is not provided in isolation but as part of a comprehensive package of health services. The goal of HIV Testing Service Integration is to make testing accessible, convenient and non-stigmatizing, while also improving efficiency and overall healthcare delivery focused at improving patient outcomes.

**Methods:** This cross-sectional study aimed to determine Healthcare Workers (HCWs) factors contributing to HIV Testing Service Integration in Primary Healthcare Facilities of Homa Bay County in Western Kenya. Structured questionnaire was used to collect quantitative data from 60 Healthcare Workers picked from four health facilities that were purposively selected. Data was analyzed using Statistical Package for the Social Sciences (SPSS) version 24.0 software.

**Results:** Healthcare Worker’s age (25-35 years) was significantly associated with HIV Testing Service Integration (95%CI=1.22-1.68, p-value=0.001). Female Healthcare Workers were found to be statistically significant in contributing to HIV Testing Service Integration (95%CI=1.24-2.03, p-value=0.002). Additionally, nursing cadre (95%CI=0.95-4.05, p-value=0.003) and Healthcare Workers training on HIV Testing Service Integration (95%CI=5.39-5.84, p-value=0.025) were found to be statistically significant in contributing towards HIV Testing Service Integration. Out of 60 Healthcare Workers, 40% cited workload as a hinderance to HIV Testing Service Integration and 75% agreed that integrating HIV Testing services into primary healthcare was a noble idea. Lastly, the perception of Healthcare Workers on HIV Testing Service Integration was statistically significant in contributing towards HIV Testing Service Integration (95%CI=1.47-1.84, p-value=0.014).

**Conclusion:** This study showed Healthcare Workers’ age, gender, cadre and training on HIV Testing Service Integration as factors contributing to HIV Testing Service Integration within Primary Healthcare facilities of Homa Bay County. Hence, the need to scale up training of Healthcare Workers on HIV Testing Service Integration to ensure program sustainability during this period of donor dwindling support including conducting further study to determine the community, patient-related and structural factors that could be influencing HIV Testing Service Integration.

*Key words: HIV Testing Service Integration, Healthcare Workers, Primary Healthcare, Homa Bay County*

1. INTRODUCTION

Human Immunodeficiency Virus (HIV) has continued to burden the Healthcare System with maximum impact felt in Sub-Saharan Africa. As at 2022, about 39 million people globally were living with HIV, 1.3 million people were newly infected with HIV and 40.4 million people had died from AIDS-related illnesses since the start of the epidemic [1].

In Kenya, HIV/AIDS contributed to 29.3% of all deaths and is among leading causes of mortality in the Country. By 2022, 1.4 million people (both adult and children) were living with HIV, 22,154 new infections and 18,473 deaths had been reported [2].

There are 47 Counties in Kenya, ten of these bear the highest burden of HIV, namely: Homa Bay, Kisumu, Nairobi, Siaya, Migori, Nakuru, Mombasa, Kakamega, Kiambu and Kisii. These ten Counties account for 57% of the Country’s HIV burden. Homa Bay County has one of the highest rates of HIV infection in the Country with HIV prevalence rate estimated to be approximately 18.5%, which is three times more than the national average (4.9%). The County contributed 15.1% and 14.0 % of the total new HIV infections in Kenya among children and adults respectively [3].

The high HIV prevalence in Homa Bay County has necessitated significant efforts by the Country and County toward increasing access to HIV Testing Services. The County has been the focus of several interventions aimed at improving access to HIV Testing Service and ensuring that those who test positive receive timely and effective treatment. Specifically, there have been significant efforts by the Government to increase access to HIV Testing Services using both community and facility-based approaches including targeted initiatives towards high-risk populations such as fishermen, commercial sex workers and young people [4]. For effective strategies on HIV prevention, the Government has continued to encourage HIV Testing Service Integration at Health facilities ensuring HIV testing is being offered on routine basis with the aim of accelerating accessibility of HIV services since HIV testing is the primary entry point for HIV care [4].

Additionally, the County has adopted the approach of integrating HIV testing services into broader health care systems. This approach ensures HIV testing is not provided in isolation but as part of a comprehensive package of health services. The goal of HIV Testing Integration is to make testing accessible, convenient and non-stigmatizing, while also improving efficiency and overall healthcare delivery focused at improving patient outcomes. This approach is critical in achieving United Nations Programme on HIV/AIDS (UNAIDS) 95-95-95 goals which aim for 95% of people living with HIV to know their status, 95% of those diagnosed to receive treatment and 95% of those on treatment to achieve viral suppression [5]. Implementation of HIV Testing Service Integration is informed by the continued HIV burden. Although Kenya has made some significant strides in increasing awareness of individual HIV status, continued HIV testing is still critical if sustainable gains in HIV is to be achieved [6]. WHO and UNAIDS strongly support the continued scale up of HIV Testing Services recognizing the need for additional innovative and varied approaches. Health facilities represent a key point of contact with HIV infected people and the public who need HIV prevention, treatment, care and support [7].

This approach involves combining HIV prevention, treatment and support services to provide comprehensive and patient-centered care. HIV Testing Services Integration improves access and continuity of care leading to better long-term health outcomes. It also increases efficiency by combining services, ensuring optimum use of resource and avoiding duplication which would lower healthcare costs. It would equally enhance patient outcomes by having a holistic approach in addressing patient's health needs. Providing HIV Testing Services alongside other health services would also help to reduce stigma and discrimination. Moreover, HIV Testing Service Integration has been shown to improve engagement and retention of patients in HIV care through improved adherence to treatment when patients’ broader health needs are met [7].

Homa Bay County has made significant progress in its HIV response with 96% of individuals living with HIV in the County being aware of their status and 97% of those diagnosed put on treatment. Despite the achievement, approximately 41,028 individuals in Kenya discontinued antiretroviral therapy posing a great risk in new HIV transmissions [2] which might negate the many years of gains the Country has had. With this risk, there is a need to have a sustained and structured HIV status awareness approach that will help identify those that are HIV infected, hence the need for this study which aimed at understanding Healthcare Workers factors contributing to HIV Testing Service Integration in primary healthcare of Homa Bay County Western Kenya.

**1.2 Objective of the study**

To determine the Healthcare workers’ factors that contribute to HIV Testing Service Integration in Primary Healthcare of Homa Bay County.

2. material and methods

**2.1 Study site and design**

This was a cross sectional study design aimed at determining Healthcare Workers factors contributing towards HIV Testing Service Integration in Primary Healthcare of Homa Bay County in Western Kenya. Homa Bay County is one of the 47 Counties in the Republic of Kenya and one of the six Counties in Nyanza region of western Kenya, it lies between latitudes 0°15’ South and 0°52’ South and between longitudes 34° East and 35°o East. The County covers an area of 4,267.1 Km2 inclusive of the water surface. It’s located in the Southern part of Nyanza, along the southern shores of Lake Victoria- Africa’s largest Fresh water lake where it borders Kisumu and Siaya counties to the North, Kisii and Nyamira Counties to the East, Migori County to the South, and Lake Victoria and the Republic of Uganda to the West. Homa Bay County has a total population of 1,131,950 persons, of which 539,560 are males, 592,367 females and 23 intersex persons [8].

### **2.2 Sampling**

### This study was done in four health facilities that were purposively selected because they were: i) the referral health facilities for the sub-County and offers most of the critical healthcare services including comprehensive HIV care services and ii) they meet the basic healthcare workers staff quantity and mix. All the healthcare workers offering Comprehensive HIV services in the four health facilities were included [9] as shown in the Table 1.

### **Table 1: Staff distribution per Health Facility**

|  |  |
| --- | --- |
| **Health facility** | **Staff offering Comprehensive HIV services**  |
| Homa Bay County teaching and Referral Hospital | 27 |
| Rachuonyo Sub-County Hospital | 15 |
| Ndhiwa Sub-County Hospital | 12 |
| Sena Health Center | 6 |
| **Total** | **60** |

**2.3 Inclusion criteria**

### Healthcare Workers offering comprehensive HIV services in the selected health facilities.

### **2.4 Data collection methods**

Quantitative data was collected using a structured questionnaire which was developed based on the available of resources, study objective and the type of data. The questionnaire assessed: age, gender, marital status, type of Healthcare Worker, HIV testing site, duration of HIV testing service, knowledge on the principles of HIV Testing Service Integration, training on HIV Testing Service Integration and perception of HCWs on HIV Testing Service Integration. Data was collected with the help of four research assistants who were experienced in data collection and research design. The research assistants were selected based on their research experience, academic qualification, gender and residence from study sites. The research assistants underwent training on study design, data collection procedures, administration of the questionnaires and study objectives. The units of observation were Healthcare Workers offering Comprehensive HIV services in the selected health facilities. Pre-testing of the questionnaires was done at Mbita Sub-County Hospital and the questionnaire was adjusted accordingly based on the feedback from pre-test. The researcher pre-tested the questionnaire on 20 Healthcare Workers to check for reliability of the instrument. The consistency of the questionnaire was evaluated using Cronbach Alpha co-efficient indicating reliability co-efficient of 0.818.

**2.5 Data analysis**

Data entry and analysis was done using Statistical Package for the Social Sciences (SPSS) version 24.0 software. Descriptive, binary logistics regression analysis technique was used to determine association between Healthcare Workers’ factors and HIV Testing Service Integration. *P*-values of less than 0.05 indicated a significant statistical relationship between HCWs factors and HIV Testing Service Integration. The data was presented using frequencies and tables.

**3. RESULTS**

The objective of this study was to determine Healthcare Workers factors that contributed to HIV Testing Service Integration in Primary Healthcare of Homa Bay County. There was 100% response rate in all the variables i.e. age, gender, marital status, type of Healthcare Worker, HIV testing site, duration of HIV testing service, knowledge on the principles of HIV Testing Service Integration, training on HIV Testing Service Integration and perception of HCWs on HIV Testing Service Integration. The high response rate was because data was collected in the afternoon when patient workload was low.

More than half (58.3%) of healthcare workers offering HIV Testing Services Integration were aged between 25-35 years, with most (71.7%) of them being female. HIV Testing Service Integration provided by nurses and clinical officers accounted for 41.7% and 28.3% respectively. HIV Testing Service Integration was offered mostly in outpatient department (OPD) 51.7%. Sixty-five (65%) of the Healthcare Workers offering HIV Testing Service Integration had training on HIV Testing Service Integration and 73.3% had knowledge on the principles of HIV Testing Service Integration. Forty (40) %) of Healthcare Workers cited workload as a hindrance to HIV Testing Service Integration and 75% recognized the importance and need of integrating HIV testing services into primary health care as shown in Table 2.

**Table 2: Descriptive statistics of Healthcare Workers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** |  | **n=60** | **%** |
| Age  | 25-35 | 35 | 58.3 |
| 36-45 | 16 | 26.7 |
| 46-60 | 9 | 15 |
| Gender | Male  | 17 | 28.3 |
| Female | 43 | 71.7 |
| Marital status | Married | 35 | 58.3 |
| Not married | 25 | 41.7 |
| Type of Healthcare Workers  | Clinical Officers | 17 | 28.3 |
| Nurses | 25 | 41.7 |
| Lab Technologist | 9 | 15.0 |
| Lay Counsellors | 6 | 10.0 |
| Medical Officer | 3 | 5.0 |
| HIV Testing Service Integration site | Laboratory | 10 | 16.7 |
| OPD | 31 | 51.7 |
| Special clinic | 8 | 13.3 |
| Ward | 11 | 18.3 |
| The duration for the HIV Testing Service Integration | < 45 minutes | 31 | 51.7 |
| >45 minutes | 29 | 48.3 |
| Knowledge on the principles of HIV Testing Service Integration | Yes  | 44 | 73.3 |
| No | 16 | 26.7 |
| Training on HIV Testing Service Integration | Yes | 39 | 65.0 |
| No  | 21 | 35.0 |
| What will make you not integrate HIV testing services into your daily work | Negative attitude | 12 | 20.0 |
| Lack of skills | 20 | 33.3 |
| Workload | 24 | 40.0 |
| others | 4 | 6.7 |
| HCWs perception on HIV Testing Service Integration into Primary Healthcare  | Agree | 45 | 75 |
| Neutral | 4 | 6.7 |
| Disagree | 11 | 18.3 |

Younger Healthcare Workers aged 25-35 years were more likely to implement HIV Testing Service Integration ((95%CI=1.22-1.68, p-value=0.001) compared to those 36 years and above. Additionally, female Healthcare Workers showed statistically significant association to HIV Testing Service Integration in primary healthcare (95%CI=1.24-2.03, p=0.002) compared to their male counterparts (95%CI = 4.29-5.27, p-value = 0.090). Nursing cadre was more likely to integrate HIV Testing Services (95%CI=0.95-4.05, *p*-value=0.003) as compared to the other stated cadres. HCWs trained in HIV Testing Service Integration were found to be associated with HIV Testing Service Integration (95%CI=5.39-5.84, *p*-value=0.025). Perception of Healthcare Workers on HIV Testing Service Integration was associated with HIV Testing Service Integration (95%CI=1.47-1.84, p-value=0.014) as shown in table 3.

**Table 3: Association between Healthcare workers factors and HIV Testing Service Integration**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables |  | **95% CI** | ***P*-value** |
| Age  | 25-35 | 1.22-1.68 | **0.001** |
| 36-45 | 0.30-1.95 | 0.072 |
| 46-60 | 1.08-2.06 | 0.401 |
| Gender | Male  | 4.29-5.27 | 0.090 |
| Female | 1.24-2.03 | **0.002** |
| Marital status | Married | 0.50-1.01 | 0.089 |
| Not married | 0.53-2.99 | 0.028 |
| Type of Healthcare workers  | Clinical Officers | 3.14-10.62 | 0.740 |
| Nurses | 0.95-4.05 | **0.003** |
| Lab Technologist | 1.97-2.20 | *0.651* |
| Lay Counsellors | 0.81-3.59 | 0.175 |
| Medical Officer | 0.28-1.65 | 0.938 |
| HIV testing integration site | Laboratory | 0.91-6.62 | 0.400 |
| OPD | 0.59-1.90 | 0.073 |
| Special clinic | 2.47-6.01 | 0.999 |
| Ward | 2.07-6.49 | 0.063 |
| The duration for the HIV testing Service integration | < 45 minutes | 1.17-28.04 | 0.331 |
| >45 minutes | 0.34-1.09 | 0.204 |
| Knowledge on the principles of HIV testing service integration | Yes  | 0.46-2.90 | 0.490 |
| No | 4.05-9.01 | 0.055 |
| Training on HIV testing service integration | Yes | 5.39-5.84 | **0.025** |
| No  | 0.69-1.30 | 0.086 |
| What will make you (Health care worker) not to integrate HIV testing services into your daily work | Negative attitude | 0.61-10.5 | 0.750 |
| Lack of skills | 0.39-7.81 | 0.381 |
| Workload | 0.35-1.83 | 0.206 |
| others | 0.60-2.66 | 0.434 |
| HCWs perception on HIV testing service integration into Primary Health Care  | Agree | 1.47-1.84 | **0.014** |
| Neutral | 0.22-1.49 | 0.208 |
| Disagree | 0.24-2.03 | 0.910 |

**4. DISCUSSIONS**

In this study the age of the healthcare workers (25-35 years) played a critical role in determining HIV Testing Service Integration, this finding could be because most Healthcare Workers working in the HIV section are new staff seconded or employed by donors supporting HIV program. Whereas previous studies have indicated that most Healthcare Workers working in the HIV section are young [10, 11], studies which demonstrate association between Healthcare Workers age and HIV Testing Service Integration remain grey.

Female Healthcare Workers showed significant association in contributing to HIV Testing Service Integration in this study. Being largely an untapped area, this finding suggests that there is a potential to leverage on gender during HIV service delivery to strengthen integration of HIV care within primary health care. A study done by Gourlay, [12] showed that gender of HCWs specifically female might have influenced HIV service; however, this study focused on uptake of Sexual and reproduction Health in the context of HIV and not HIV Testing Service Integration within PHC. In another study conducted in Zimbabwe showed some patients preferred Healthcare Workers of the same gender as themselves while seeking for HIV services [13]. The Zimbabwe study did not look into factors that could be driving different gender of Healthcare Workers in service provision.

While there are several cadres of HCWs in Kenya, this study focused on Clinical Officers, Medical Officers, Nurses, Lab technologist and lay counselors, and found that there was significant relationship between the nursing cadre and HIV Testing Service Integration. Similarly, a study by Fuller [14] showed that Healthcare Workers played a critical role in ensuring HIV Service Integration. However, it did not analyze specific cadres of Healthcare Workers in the context of Kenya and sub-Saharan Africa. Furthermore, a study by Lindsay [15] showed that Community Health Workers enhanced HIV service delivery. Although, Lindsay’s study focused on HIV service uptake among people living with HIV and not integration of HIV care services within PHC.

This study further demonstrated that training of Healthcare Workers on HIV Testing Service Integration had statistical significance in contributing to HIV Testing Service Integration. This could be because most HIV trainings have a component of HIV Testing Service, but it would be recommendable to have a training package in HIV Testing Service Integration. This finding agrees with a study by Chimoyi [16] which showed that training of HCWs improved HIV prevention service delivery in health facilities and the community. However, Chimoyi’s study did not look at different cadres of Healthcare Workers and the integration aspect. Similarly, a study conducted in Uganda [17] showed that limited HCWs knowledge and skill in comprehensive HIV care posed a potential barrier to its integration within PHC.

**5. CONCLUSION**

This study showed Healthcare Workers’ age, gender, cadre and training on HIV Testing Service Integration as factors contributing to HIV Testing Service Integration in Primary Healthcare facilities of Homa Bay County. Negative staff attitude, lack of skills and high patient workload negatively affected HIV Testing Service Integration.

**6. RECOMMENDATIONS**

Homa Bay County and the Country at large need to scale up training of Healthcare Workers on HIV Testing Service Integration to ensure program sustainability during this period of donor dwindling support.

Conduct further study to determine the community factors, patient-related factors, structural/organizational factors that could be influencing HIV Testing Service Integration.

**7. STUDY LIMITATION**

Inadequate data on Healthcare Workers factors determining HIV Testing Service Integration in Primary Healthcare facilities of Homa Bay County made it difficult to conduct a concise literature review.

LIST OF ABBREVIATION

|  |  |
| --- | --- |
| aids | Acquired Immunodeficiency Syndrome |
| ART | Antiretroviral Therapy |
| CDC | Centers for Disease Control and Prevention |
| CI | Confidence Interval |
| HCW | Healthcare Workers |
| HIV | Human Immunodeficiency Virus |
| HTS | HIV Testing Services |
| opd | Outpatient Department |
| PITC | Provider Initiated HIV Testing and Counseling |
| PLHIV | People Living with HIV  |
| PMTCT | Prevention of Mother To Child Transmission of HIV |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| WHO | World Health Organization |

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

**CONSENT**

Participants’ written consent was obtained and the forms stored by the authors.

**ETHICAL APPROVAL**

Ethical approval was given by Maseno University Ethics Review Committee

**COMPETING INTERESTS**

Authors have declared that no competing interests exist

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