DETERMINANTS OF ANTIRETROVIRAL TREATMENT ADHERENCE AMONG HIV/AIDS INFECTED ADOLESCENTS IN THIKA LEVEL 5 HOSPITAL

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ABSTRACT

ART adherence rates in Kenya remain inconsistent especially amongst the young people. The study sought to establish the determinants of ART adherence among infected adolescents in Thika level 5 hospital. The research took place in Thika Level 5 hospital in Thika Sub-County in Kiambu County. The researcher used descriptive survey research design targeting 50 active HIV/AIDS infected adolescent outpatients aged between 10-19 years and health care providers (HCPs). The study used the Yamane's formula (1967) to calculate the sample size of the adolescents. Simple random sampling design was used to select 187 adolescents. 25 HCPs working were purposively sampled for qualitative interviews. The research included the adolescent patients who are aged 10-19; years have been under ART in Thika Level 5 for more than one year. A questionnaire was used for the adolescents with interviews used for the HCPs. The quantitative data was analyzed through SPSS v20 for descriptive analysis with qualitative data analyzed through content analysis. The study found that majority of the respondents agreed that taking ART on schedule can help someone with HIV to prolong life. Majority of the respondents indicated that they had received adherence counseling before and after ART. The study concludes that there is poor drug adherence by adolescents under ART in Thika Level 5. The study further concludes that health literacy, clinical setting, food and nutrition and social support affects adherence to ART among infected adolescents in Thika level 5 Hospital. The study recommends counseling, positive living, formation of support groups, continued guardians support care and follows up. A study on the factors influencing HIV infection amongst the youth in Kenya is recommended.

Key Words: *Adherence, Antiretroviral Therapy, CD4, Viral Load*

INTRODUCTION

According to WHO, (2012) there are approximately 34.2 million people living with HIV and AIDS (PLWHA) worldwide out of which an estimated 2 million deaths have been attributed annually. HIV infection is particularly widespread in populations with limited resources. The frequency of HIV infection in sub-Saharan Africa ranges from 50% to 80%, as compared to the other parts of the world Getahun (2010). ART no complacency among the infected has been a major public health concern. A meta-analysis of 569 ART studies conducted by DiMatteo (2004) revealed that patients display an average obedience rate of 25% globally, and 45% for Africa. According to Mills et al., (2006) there was involved combined continental adherence occurrence of 36%.

In the developed nations, a study conducted by Sherr et al., (2008) who assessed ART adherence among HIV+ patients in the United Kingdom reported a combined measure of non-adherence rate of 58%, particularly among HIV infected patients). In Cuba a study conducted by Aragonés et al., (2006) among 847 HIV patients showed 70.6% self-reported high adherence as a result of self-efficacy, changing treatment regimens, good

communication with the clinician, commitment to and opinions about treatment improves adherence. This report goes hand in hand with that of Mills et al. (2006) who made a conclusion that ART adherence occurrence is about 77% in Africa. From the available data, it is evident that ART non-adherence rates are higher among HIV+ patients in developed countries (D'Armino et al., 2002). However, adherence rates are slightly higher in developing countries.

In sub-Saharan African countries according to Orrell, (2003) studies have shown low treatment adherence among HIV+ patients; with 63% non-adherence rate in South Africa; another study was conducted by Byakika et al., (2005) has shown a 68% non-adherence rate in Uganda, 54% in Nigeria (Iliyasu et al., 2005). However, the non-adherence prevalence of 24% (Amberbir et al., 2008) and 13% (Marcellin et al., 2008) were reported in Southwest Ethiopia and Cameroon respectively. Different studies like for instance Munyao's et al., (2005) have reported varied rates with a non-adherence rate of 64% in Mombasa, 48% in Kibera, Nairobi as according to a study conducted by (Ellis et al., 2006), and a study conducted in Eldoret by Talam et al., shows a non-adherence rate of 56.8% (2008).

According to WHO, (2008) young people including adolescents are the highest numbers of people with Human Immune Deficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) in the world. According to UNAIDS (2008) it is estimated that those between the ages of 15-24 years add up to 50% of new infection occurrence worldwide. In Kenya for instance, 3.8% of the youth aged between 15-24 in 2012 were HIV-positive. To reduce cases of treatment failure to ART, one is required to adhere to the ~ 95% of prescribed doses (ibid).

There has been general focus by local studies on adherence to HIV drugs. However, the studies have focused either on the general population or children. For instance, a study conducted by Arika (2011) focused on adherence to ART therapy in infected children in Thika which sorely majored in the care giver factors associated with adherence. Karanja (2013) undertook a study on factors influencing a follow up of ART among patients living with HIV in Kenya.

RESEARCH QUESTIONS

1. What is the influence of health literacy on antiretroviral treatment among adolescents infected with HIV/AIDS in Thika Level 5 hospital?
2. To what extent does clinical setting affect antiretroviral treatment among adolescents infected with HIV/AIDS in Thika Level 5 hospital?
3. What are the effects of food and nutrition on antiretroviral treatment among adolescents infected with HIV/AIDS in Thika Level 5 hospital?
4. To what extent does social support affect antiretroviral treatment among adolescents infected with HIV/AIDS in Thika Level 5 hospital?

RESEARCH HYPOTHESIS

The study hypothesized that health literacy does not influence antiretroviral treatment adherence by adolescents infected with HIV/AIDS in Thika Level 5 hospital; clinical setting does not influence antiretroviral treatment adherence by adolescents infected with HIV/AIDS in Thika Level 5 hospital; Food and nutrition does not influence antiretroviral treatment adherence by adolescents infected with HIV/AIDS in Thika Level 5 hospital; and that social support does not influence antiretroviral treatment adherence by adolescents infected with HIV/AIDS in Thika Level 5 hospital.

LITERATURE REVIEW

Sabaté (2003) noted that adherence is the extent to which a person's behaviour changes with the given rules by a health care provider. The best response rate yielded to ART adherence has been that of 95 percent and above. Adherence can suppress viral load, increase the CD4 cells count and minimize resistance to the drugs which can improve the quality of life of an infected person.

Adherent behaviour according to Paterson et al., (2000) is likely to affect the way people utilize the available health care. Adherence is categorized in various ways. According to Schonnesson et al. (2006), dose adherence is based on the amount of dosage intake; schedule adherence is based on timeliness of the doses; while dietary adherence is based on dosage and dose taken. An infected person needs to consider all these aspects of adherence to achieve optimal results.

Miller (1997) based non-adherence to ART on failure to take medicine, non-timely drug intake, wrong dosage or premature termination of medication. Chesney (2003) based this on not following drug instructions and lack of understanding of the instructions. Gill et al. (2005) measure adherence based on drug count, drug refill and drug monitoring. According to WHO (2003) regimen characteristics, patient characteristics, and the relationship between the provider and patient affect ART adherence.

According to Kalichman et al., (2000) poor health literacy which includes failure to understand the prescriptions given has brought about a low rate of adherence to ART. Kalichman, Cherry and Cain (2005) saw the need for interventions in order to reduce literacy issues for adherence. Expecting ART adherence levels to rise remains difficult in co-infected patients as a result of inadequacy of involvement aimed at improving literacy on treatment among patients in Kenya.

Drug and treatment may be affected by the Clinical setting. Clinical setting involves resources like number of health care personnel, drug supply, infrastructure, equipment and material used in providing treatment, the manner at which resources are coordinated and controlled which can include providing treatment, treatment schedules, waiting hours, clinic appointments and referral systems. A study conducted in Nairobi to establish the effects of counseling and apprehension on ARV adherence found that early intensive adherence

counseling when a patient is being started on HAART resulted in a significant reduction in poor adherence failure while use of apprehension did not change much (Chung et al., 2011).

Food is important to patients under ART treatment. Some patients may not take the medicines frequently on a daily basis as advised because they may not have enough food. Lack of enough food can lead to non-adherence to ART. According to Mshana et al. (2006) food insecurity hinders adherence as patients fear starting ART due to lack of enough food. Moreover, according to Anema et al, (2009) adherence is worsened by food insecurity.

A study conducted in Uganda indicates that adherence may be affected by food insecurity and hunger and that these two factors may cause delay on ART or discontinued ART therapy. According to Weiser et al. (2010) ARVs related hunger, side effects due to inadequate food, counseling on the necessity of food while under medication, treatment related costs and failure to follow prescriptions affect adherence.

Bearman & La Greca, (2002) states that medical adherence is strongly predicted by social support. Patient guidance and support by family and friends is social support (DiMatteo, 2004). Holstad et al., (2006) found a strong evidence that social support leads to increased adherence to ART. Family support is key to ART adherence (DiMatteo, 2004). The support from family members as stated by Bearman & La Greca, (2002) may offer moral and psychological support to the members infected with HIV. Poor drug adherences may result from lack of care and neglect from their family caregivers depicted through stigma and discrimination.

THEORETICAL FRAMEWORK

The study is based on the social cognitive theory and the theory of planned behaviour. The Social Cognitive Theory which stresses continuous, dynamic interaction between the person, the behavior and the environment was developed by Albert Bandura in 1986 (Bandura, 1989). Social cognitive theory has effectiveness as one of the major concepts. Effectiveness is concerned with the role of the person within the reciprocal interaction described by the Social Cognitive Theory. This implies that accurate appraisal of one's capabilities has considerable value in determining behaviour.

The concepts in this theory will inform the variables developed to understand the key determinants to adherence behaviour of adolescents taking antiretroviral drugs (Bandura, 1989). This study assessed the knowledge, attitude and behaviour of the participants in regard to ART and HIV/AIDS and how this affects their adherence behaviour. Social cognitive theory hence was helpful in understanding and predicting adherent behaviour and also in coming up with recommendations for improving adherent behaviour.

Theory of planned behaviour attempts to predict occurrence of behaviour as long as that behaviour is intentional. The theory develops on similar foundations as those of the theory of reasoned action whereby behaviour is meant to be voluntary. Since behaviour is not hundred percent voluntary and some various factors may control behaviour, the perceived behaviour

control construct was introduced leading to the formulation of the theory of planned behaviour (Ajzen, 1991).

The main construct of the model is influenced by three observations: attitudes, beliefs and supposed behavior control. An adherence level of 95% and above of the prescribed pills is expected among those taking antiretroviral medications. When a patient keeps on evaluating the expected outcomes of taking ARVs, which in this case is improved health outcome that also motivates the individual to continue adhering the medications. Regarding the perceived behavioural control, this is where a patient on ART constantly remembers that adhering to the medications can be a difficult task and hence develops mechanisms of enhancing adherent behaviour.

RESEARCH METHODOLOGY

The descriptive research design was used appropriate as it allows for collection of in-depth information on treatment adherence among patients thus allowed for generalization of the findings to a larger population. The study targeted 350 active HIV/AIDS infected adolescent outpatients aged between 10-19 years. The study also targeted 25 health care providers delivering care and treatment services to HIV/AIDS infected patients in Thika Level 5 hospital. A sample size consisting of 25 health care providers was purposively sampled. To calculate the sample size of the adolescents, the study used the Yamane's formula (1967).

$$n = \frac{N}{1+N(e)^2}$$

The study adopted simple random sampling to select 187 adolescents. The sampling frame used was a HIV clinic register. For in-depth interviewing 25 health care providers were purposively sampled. According to Coetzee et al., (2011) the clinicians have a profound understanding of the patient's behavioural and clinical response towards antiretroviral therapy.

Adolescents aged between 10-19 years were the ones included in the research who had been under ART in Thika Level 5 for more than one year only excluding those with less than a year. Structured questionnaires were used in the data collection. To determine content validity and reliability of the research instruments piloting of infected adolescents from the nearby Jomo Kenyatta University hospital was done. Descriptive and inferential statistics were used to present the data. Descriptive statistics like frequency, mean, percentages and standard deviation. Tables, figures and discussions were used to summarize quantitative findings.

RESEARCH FINDINGS

From the findings majority of the adolescents were females, aged between 16 -19 years in secondary school. Most of the respondents were protestants. Majority of the adolescents (51.3%) were. For the key informants most of the them were married with secondary education. Majority had a TV, radio but no newspaper. most of the adolescents had been on ARVs for more than 10 years, visited HIV clinic for drug refill and checkups more than twice a month.

Adherence to drugs

The study established that majority of the respondents had no difficulty in taking their HIV/AIDS medications on time and never missed a dose of their medication. 85.3% indicated their viral load as abnormal while 88.7% indicated their CD4 count as normal.

On the benefits, the findings from the interview indicated that the benefits of adherence to antiretroviral amongst the adolescents were sustained good health and positive living; reduced opportunistic infections; relieved burden to community; cost effective management of health to county; long life and increased productivity in youth. The key challenges facing adolescents in adherence, included school related challenges; lack of disclosure; late disclosure to treatment; drugs & alcohol abuse; adolescent crises; stigma and discrimination in schools; poor support systems from guardians/ parents; transition from childhood to adolescents; peer pressure; poor understanding of the disease; fear of being stigmatized by their peers; social economic and adolescent crisis. Other issues were poor ARV adherence, adolescent crises, chronic illnesses, unsafe sexual activities, lack of support, inadequate counselling, recruitment into gayism/ lesbianism and lack of disclosure by parents on the status of the children.

85.3% of the respondents indicated an adherence score of between 8 and 10. A positive relationship between difficulty in timely intake of medicine and missing the dose displayed a positive relationship. The relationship to Viral load and CD4 count despite being positive was found to be insignificant. Missing the dose was found to have a negative relationship to the CD4 count and viral load.

Health literacy

On health literacy, the respondents agreed that missing doses of ART leads to HIV getting worse. They agreed that once a person starts ART, he/she should take ART every day for life, they understood medical instructions of how ART medicines work, and that taking ART on schedule can help someone with HIV to prolong his/her life. However, the respondents disagreed that HIV/AIDS can be cured with ARTs. Majority of the respondents as shown by 84.7% had a score of between 5 and 7. From the correlation analysis a weak relationship between health literacy and adherence to ART was shown.

Clinical setting

72.7% of the respondents had received adherence counseling before ART while 81.3% of had received adherence counseling after starting ART. Privacy was maintained during consultation. Difficulties in accessing medication and health care included supply of drugs, harsh healthcare providers and lack of information. Majority of the respondents had not missed ARVs medicines at the clinic. The interviewees indicated that they had no protocols for treatment and waiting hours.

The association between adherence counseling before start of drugs and adherence to ART amongst adolescents was statistically significant with a p-value of 0.010. In addition, calculated X^2 (3.908^a) was greater than the critical X^2, which is 3.841. The association between adherence counseling after start of drugs and adherence to ART amongst adolescents was statistically significant with a p-value of 0. 034. In addition, the calculated X^2 (4.533^a) was greater than the critical X^2, which is 3.841.

Food and nutrition

Majority of the respondents purchased their food and spent approximately 200 to 300 shillings in a day on food. Going to bed on an empty stomach affected adherence to ARVs. Association between source of food and adherence to ART amongst adolescents was statistically significant with p-value of 0.041. In addition, the calculated X2 (6.677a) was greater than the critical X2, which is 3.841. The association between meals per day and adherence to ART amongst adolescents was statistically significant with p-value of 0.011. In addition, the calculated X2 (9.948a) was greater than the critical X2, which is 3.841

Social Support

Majority of the respondents indicated that they have never disclosed their HIV status but somebody reminded them to take ARV drugs. Majority received support from family and sometimes from organizations supporting people living with HIV and AIDs. The association between disclosure of HIV status and adherence to ART amongst adolescents was statistically significant with a p-value (0.000). In addition, the calculated X2 (15.535a) was greater than the critical X2, which is 3.841. The association between membership to an organization of people living with HIV and AIDS and adherence to ART amongst adolescents was statistically significant because with a p-value of 0.007. In addition, the calculated X^2 (7.835^a) was greater than the critical X^2, which is 3.841. The association between family support and adherence to ART amongst adolescents was statistically significant with a p-value of 0.006. In addition, the calculated X2 (7.482^a) was greater than the critical X^2, which is 3.841.

HYPOTHESIS TESTING

The researcher rejected the hypothesis that since the P-values were below 0.05 we reject the null hypothesis and conclude that:

1. Health literacy influence adherence to ART by infected adolescents in Thika Level 5 hospital.
2. Clinical setting influence adherence to ART by infected adolescents in Thika Level 5 hospital.
3. Food and nutrition influence adherence to ART by infected adolescents in Thika Level 5 hospital.
4. Social support influence adherence to ART by infected adolescents in Thika Level 5 hospital.

CONCLUSIONS

The study concludes that missing doses worsens HIV, taking ART on schedule can help someone with HIV to prolong his/her life and that adolescents in Thika level 5 hospital understood medical instructions of how ART medicines work.

The ARV drugs in Thika level 5 hospital were adequate for the adolescents under ART. The adolescents under ART in Thika level 5 hospital had received adherence counseling before and after ART and had information on the side effects and interactions of ARVs.

The adolescents under ART in Thika level 5 hospital experience difficulties in search for care and treatment. Long waiting queues/time as a major challenge facing adolescents under ART in Thika level 5 hospital.

The study concludes that the adolescents under ART in Thika Level 5 have adequate food and with very few having slept on an empty stomach. The families of the adolescents spend more than 200 shillings daily on food. Some adolescents have inadequate food due to poor background with little support offered to them.

The study concludes that adolescents under ART in Thika Level 5 hospital rarely disclose their HIV status. The study further concludes that there is poor drug adherence by adolescents under ART in Thika Level 5. This is based on the low CD4 count amongst the adolescents.

RECOMMENDATIONS

In order to improve adolescents' adherence to antiretroviral treatment there should be a coordinated school health programme to identify persons to assist during school times especially boarding schools. Campaigns to improve adherence should be organized especially in school. The parents should also ensure early diagnosis and disclosure of their children's' status. Adolescents should also be involved in all decisions made to enhance their input towards change. They should also know why they are taking ARVs and its importance in suppressing the virus. The study further recommends counseling, positive living, formation of support groups, continued guardians support care and follow up.

REFERENCES

Anema A, Vogenthaler N, Frongillo E.A, Kadiyala S, & Weiser S.D (2009). Food insecurity and HIV/AIDS: current knowledge, gaps, and research priorities. *Curr HIV/AIDS Rep*, 6, 224-231.

Bhaskaran U., Mahalingam S., Ramapuram J.T., Rao S., Achappa B., & Deepak Madi (2013). Adherence to Antiretroviral Therapy among People Living with HIV in India. *N Am J Med Sci*. 5(3), 220–223.

Chung, M. H., Richardson, B. A., Tapia, K., Benki-Nugent, S., Kiarie, J. N., Simoni, J. M., John-Stewart, G. C. (2011). A randomized controlled trial comparing the effects of counseling and alarm device on HAART adherence and virologic outcomes. *PLoS Medicine*, 8(3), e1000422

Cooper, R.D. & Schinder, S.P. (2008). Business Research Methods. McGraw Hill. New York: USA

Holstad M.K, Pace J.C, De A.K & Ura DR (2009). Factors associated with adherence to antiretroviral therapy. *J Assoc Nurses AIDS Care*, 17(2):4-15.

Karanja S.W. (2011). *Factors Influencing Adherence to Antiretroviral Medications among Patients Living With HIV in Kenya* (Master of Arts Thesis, University of Nairobi). University of Nairobi, Nairobi, Kenya.

Kombo, D. K. & Tromp, D. L. A. (2010). Proposal and Thesis Writing: An Introduction, (9thEd.). Paulines Publications Africa, Nairobi, Kenya.

Kothari, C. R. (2011). Research Methodology Methods and Techniques, (2nded.). New Age Internal Publishers, New Delhi, India.

Mannheimer S, Friedland G, Matts J, Child C, Chesney M (2002). The consistency of adherence to antiretroviral therapy predicts biologic outcomes for human immunodeficiency virus-infected persons in clinical trials. *Clin Infect Dis*, 34, 1115–1121.

Mshana GH, Wamoyi J, Busza J, Zaba B, Changalucha J, et al. (2006) Barriers to accessing antiretroviral therapy in Kisesa, Tanzania: a qualitative study of early rural referrals to the national program. *AIDS Patient Care STDS*, 20, 649-657.

Mugenda, O. & Mugenda, A. (2003). Research Methods Quantitative and Qualitative Approaches. ACTS Press - Nairobi, Kenya.