# The Relationship between Acceptance and Adherence to ARV among Elderly persons. A Case Study of Kakiri Health Centre.

M Elisha Braos Buthamira*

*Faculty of Social Sciences and Psychology, University of Kisubi, PO. Box 182 Entebbe Uganda*

**Abstract**

**Background**

World Health Organization (WHO) recommendations using age 50 and older are defined for older persons. Medication adherence is so critical to the success of HIV management and its comorbidities. However being on new regimens may increase the effectiveness despite suboptimal adherence, past work may demonstrate that in the majority of regimens, patients need to adhere to HIV treatment at the perfect rates possible to counter disease progression, multidrug resistances, and immunologic failures.

**Methodology**

A case study design with both qualitative and quantitative research approaches is used in Kakiri Health Centre which is found in the Central part of Uganda-Kakiri Town Council. The study was conducted among elderly individuals who have lived with HIV and on ARV.

**Results**

The majority 140(73%) of the respondents were between 65-74 years, whereas 52(27%) were 75-84 years. This implies that most of the adults in the ART clinic were 65-74 years. There is a positive significant relationship between acceptance and adherence to ARV ($r = 0.369$, $p = 0.001$). The findings suggest that people with acceptance tend to have good adherence to ARV.

**Conclusion**

In light of the study findings, the study concludes that there was high acceptance and adherence to ARV among elderly persons living with HIV in the case of Kakiri Health Centre HIV Clinic.

**Recommendation**

In line with the first objective, the study recommends that there should be achievable psychological strategies like psycho-education exposed to the psychologists and counselor trainers so that they come up with effective and empirically proven psychological interventions for the families faced with acceptance and adherence to help affected victims in families. This will be helpful in the mitigation of poor adherence and its long-term effect on persons who have been affected by the situation.

*Keywords:* ( ARVs, Elderly persons, Acceptance, Adherence), Date Submitted: 2022-07-26 Date Accepted: 2022-09-02

## 1. Background of the study

The African Union framework on aging defined older persons as those aged above 60 years and older. In Uganda, during the drafting of the policy for older persons in 2009, the age 60 years

*Corresponding author.

*Email address:* butamiraelisha2@gmail.com (M Elisha Braos Buthamira)

and older were used. World Health Organization (WHO) recommendations using age 50 and older are defined for older persons. Subsequently, several studies adopted the age of 50 and elder, as an appropriate definition of old age in sub-Saharan Africa (SSA) countries including Kenya; Uganda, and South Africa, and those of the WHO Study on global aging and adult health (SAGE) and the IN-DEPTH network.

Medication adherence is so critical to the success of HIV management and its comorbidities. However being on new regimens may increase the effectiveness despite suboptimal adherence, past work may demonstrate that in the majority of regimens, patients need to adhere to HIV treatment at the perfect rates possible to counter disease progression, multidrug resistances, and immunologic failures. So many things can make adherence challenging and these include age-related co-morbidities, losing memory, body changes, and adverse effects due to drug toxicity as a result of the age-related physiological decline in renal and hepatic functions.

While adult patients with several medications are considered to be at a high risk of non-adherence, some studies have shown that many adults with HIV achieve greater adherence to therapy than their younger counterparts with HIV. This particular population of adults is more organized and experienced in daily lives, or possibly are more motivated after they have experienced the initial devastating outcomes of the AIDS epidemic.

However, some studies have concluded that age is not associated with improved adherence rates, and many older individuals demonstrate suboptimal treatment adherence. As older adults have been found to have reduced survival rates after HIV diagnosis, and non-adherence may increase the risk for progression, determining rates of non-adherence is important to understand risk factors and improve successful treatment (CDC 3013, World health organization 2020)

Treatment adherence is critical to the success of HIV disease management. Although newer regimens may be effective despite suboptimal adherence, past work demonstrates that for the majority of regimens, patients must adhere to HIV treatment at nearly perfect rates to counter disease progression, multi-drug resistance, and immunologic failure. Adherence can be challenging as a consequence of age-related co-morbidities, memory loss, changes in body composition, and adverse effects and drug toxicity due to age-related physiological decline in renal and hepatic functions (journal of personality and social psychology, 1983). While older patients with more medications are considered to be at increased risk of non-adherence, some studies show that older adults with HIV may achieve greater adherence to therapy than their younger counterparts. This particular population may be more organized and knowledgeable in their daily lives, or possibly more motivated after experiencing the initial devastating outcomes of the AIDS epidemic.

However, some studies have concluded that age was not associated with improved adherence rates, and many older individuals demonstrated suboptimal treatment adherence. As adults have been found to have reduced survival rates after HIV diagnosis, and non-adherence may increase the risk for progression, determining rates of non-adherence is important to understand risk factors and improve successful treatment (Wilson et; 2013).

## 2. Methodology

### Study Design

The study adopted a case study design with both qualitative and quantitative research approaches. It was a case study because, through self-reporting, a survey facilitates research when one is dealing with sensitive or controversial topics, accuracy in measurements is enhanced by qualification, replication, and control over observer effect, and case study results would generalize to a larger population within known limits of error. It allowed an in-depth analysis of the situation (Curtis, Comiskey& Dempsey, 2015). It used data from the respondents once at a time from a given unit only in the hospital. The case study design was used because it provides information on cognitive appraisals on ARV adherence

among elderly persons. A case study allows the use of different methods in data analysis such as inferential and descriptive statistics to make conclusions. The study was based on both quantitative and qualitative methods with the dominant approach being quantitative. Statistical inferences were made by the use of Quantitative data by relating the independent and dependent variables. Qualitative data were used to supplement the quantitative data with detailed information in form of statements from interviews for in-depth analysis.

**Locale of the study**

The research was conducted in Kakiri Health Centre which is found in the Central part of Uganda-Kakiri Town Council.

**Study population**

The population of the study was elderly individuals who have lived with HIV and on ARV at Kakiri Health Centre. Since the victims of HIV undergo treatment, therefore the study only tried to understand the cognitive appraisal and how it affected their ART adherence. Kakiri district has a total population of approximately 1,959 500 (Uganda Bureau of Statistics, 2014). The prevalence of HIV in the central region of Uganda is estimated at 8.5% (Uganda AIDS Commission, 2015).

**Population sample/ sample size**

The elderly were defined as those people of 50 years and above as recommended by the World Health Organization. The researcher thus considered the aged 50 years and above as the respondents who could provide informed consent. The sampling size in this study was the elderly living with HIV and attending medication at Kakiri Health Centre which is the second care provider for people living with HIV in wakiso, with a total clientele of over 1,553 of which 479 were patients. The study used only elderly patients from the target of 479 people.

The study used Morgan and Krejcie's (1970) Table for determining the sample size of a known population. The study targets 479 patients, whereby a sample size of 214 respondents was selected to participate in the study.

**Sampling procedure**

The purposive sampling technique was used in selecting participants in the study since only older people who were victims and are receiving ARV was selected. The study adopted a simple random sampling procedure. Simple random sampling was a lottery method of sampling where individuals or samples are picked randomly from a group in the same population (Creswell, 2013). This type of sampling procedure avoids biases and ensures proportional representation to select elderly people who are receiving ARV and who were given questionnaires to respond to. On the other hand, the researcher used documentary analysis to gather data on adherence from the health center.

## 3. Methods and Instruments of Data Collection

The study used qualitative and quantitative methods of data collection that were questionnaires and documentary analysis. The study used a self-administered questionnaire for patients and a documentary analysis for ARV adherence.

**Self-administered questionnaire**

The researcher worked on a structured self-administered questionnaire with both closed and open-ended questions. The questionnaire was appropriate since it was flexible not expensive and not biased. The data of the study was collected using both structured and semi-structured questionnaires that consisted of items that measure cognitive appraisals, religiosity, and ARV adherence.

**Documentary Review**

The researcher used document review to obtain existing statistical data for ARV adherence among elderly patients for the last year. A structured document review guide was used to collect the data from the health center to justify the ARV adherence rates. Document reviews help in providing dependable data that has already been analyzed though for a different purpose but can be manipulated to suit the purpose of the current study.

**Quality Control**

**Validity**

The researcher established the content validity of the instruments by making sure that the items on the main variables conform to the conceptual framework of the study. The opinion of the supervisors on the relevance, wording, and clarity of the items in the instruments was sought and there was validation of the question items. Accuracy of information was assured by the use of relevant instruments. The minimum CVI is 0.6 and the calculated CVI ought to be above the threshold. The questionnaire was subjected to rating and Content Validity Index (CVI) by using the following formula:

CVI=

**Reliability**

Reliability is synonymous with consistency and reliability over time, over instruments, and groups of respondents. Reliability is concerned with precision and accuracy. For research to be reliable it must demonstrate that it was carried out on a similar group of the respondent in a similar context, if similar results were found (Creswell, 2013). The researcher used the Statistical Package for Social Scientists (SPSS) to ascertain this. The researcher carried out a pre-test on the research instruments to determine their reliability.

The purpose of administering the pre-test was to determine the reliability of the instrument by finding out whether the questionnaire was interpretive by the respondents and to check its consistency from one respondent to another on the variables being studied. A pre-test was done among 15 older people who were receiving ARV in the study area and those who participated in the pre-test were not used in the real fieldwork study. Cronbach's Alpha of 0.7 and above was used to determine the coefficient of reliability using the Statistical Package of Social Scientists. The instrument was regarded as reliable and good for data collection when the test result was above 0.7 and since the result was 0.792 the toll was considered to be reliable.

**The procedure of Data Collection**

The researcher first got an introductory letter from Post Graduate School introducing the researcher to the health facility after the proposal had been approved. This letter introduced the researcher to the management to seek permission to collect data relevant to the study. The researcher personally distributed the research questionnaires and conduct the documentary review. Each questionnaire was accompanied by a letter explaining the general purpose of the study.

**Data processing and analysis**

The questionnaires collected were checked to ensure whether all items are filled. The raw data was compiled and analyzed both qualitatively and quantitatively from the organized according to the objectives of the study and research questions. The organized data was presented in frequency tables for discussion and interpretation of meaningful data. This was done using the SPSS program.

**Quantitative Data Analysis.**

After a successful data collection exercise, the data was sorted objective by objective and coded. The analysis was systematically and consistently done for each of the three research questions. Using IBM SPSS statistics 20 the researcher produced frequency tables, Correlation coefficient tables which were used for the discussions, interpretation, and drawing of conclusions

Data processing in this study started with editing, coding, transcription, data entry and data cleaning, tabulation, and report formatting to ensure that the data collected was accurate and completed before data was analyzed. Data processing was done during and after fieldwork. Objectives 1 and 2 were analyzed using descriptive statistics such as the frequency, and percentage means, and objective 3 was analyzed using Pearson Correlation Product Moment as well as linear regression to ascertain the influence.

**Qualitative Data Analysis.**

The qualitative data collected was coded and grouped according to the study objectives and emerging themes through thematic methods and content analysis. The thematic analysis involved the grouping of information with similar meanings. The content analysis helped to summarize words into fewer content-related categories. Social scientists use content analysis to examine patterns in communication in a replicable and systematic manner. One of the key advantages of

$$\frac{Total\ number\ of\ relevant\ items}{Total\ number\ of\ items}$$

Figure 1: CVI= 24/27 =0.89 which was above 0.6 hence the items was taken to be valid.

Table 1: **1: Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .792 | 24 |

using content analysis to analyze social phenomena is its non-invasive nature, in contrast to simulating social experiences or collecting survey answers. Qualitative data supplemented quantitative data and helped in providing explanations.

**Ethical Considerations**

Ethical matters are important in carrying out \research work. The researcher made sure that participants were not subjected to risks. The ethical issues that were considered are confidentiality, anonymity, and informed consent. Confidentiality was guaranteed. In data analysis and interpretation, ethical issues were considered by protecting the anonymity of the participants. Participants' names were not mentioned in the data analysis. The participants were informed that the researcher would handle the raw data and that the research was used for academic purposes only. The researcher explained to the respondents the purpose of the study to make them choose to participate in it on their own by signing a consent form.

Anonymity was maintained by protecting the identities of the respondents by not linking the respondents' identities to their responses. The researcher kept promises and agreements; act with sincerity; strive for consistency of thought and action as a means of promoting integrity. In addition, the researcher was careful and critical in examining the work and the information from the participants and kept good records of research activities, such as data collection, and research design. To promote openness, the researcher allowed openness to criticism and new ideas and acknowledgment or credit for all research contributions. As well as protect confidential communications.

The researcher was responsible for the conduct of the research and the consequences of that research. Thus, the researcher accepted individual responsibility for the entire process.

Informed consent was obtained from subjects who participated in the study and it ensured that all subjects participated voluntarily. The researcher explained clearly the study in advance and promised to debrief subjects afterward (Kothari, 2013). The explanations were key in gaining informed consent from the participants. Informing the participants about the results of the study built trust and justified the study to the participants. The results of the study and the recommendations proposed impacted the participants' future actions and perceptions.

## 4. Results:

The study targeted population was 479 respondents with a sample size of 214. The researcher gave out 214 questionnaires and only 192 questionnaires were returned which was approximately 89.7% responses rate of what was distributed.

### *4.1. Respondents Profile*

On the issue of age bracket, majority 140(73%) of the respondents were between 65-74 years, whereas 52(27%) were 75-84 years. This implies that most of the adults in the ART clinic were 65-74 years.

Regarding the gender, 118(61.5%) of the respondents were female while 74(38.5%) were male. This implies that there were more female respondents as compared to male and it corresponds

Table 2: **Questionnaire Response Rate**

| Target population | Sample size | Returned | Percentage |
|---|---|---|---|
| 479 | 214 | 192 | 89.7 |

Table 3: **Respondents Profile**

| **Age bracket** | Frequency | Percent |
|---|---|---|
| Young elderly 65-74 | 140 | 73 |
| Medium elderly 75-84 | 52 | 27 |
| Total | 192 | 100 |
| **Sex** | | |
| Male | 74 | 38.5 |
| Female | 118 | 61.5 |
| Total | 192 | 100.0 |

with the documentary analysis that more females go for than men. Therefore female views dominate the study findings although those of males are substantively represented.

**Adherence to ARV**

The table above shows that the Aggregate mean and Standard deviation were 2.624 and 0.91909 respectively. The art clinic provides counseling services that promote my adherence had a mean of 2.7617 and a standard deviation of 0.98540. While looking at the availability of ARV drugs make me adhere to it with a mean of 2.8667 and a standard deviation of 0.97316 and lastly looking at monitoring of cd4, viral load and optimistic injection make me adhere had a mean of 2.5642 and a standard deviation of 0.81975

**Acceptance and Adherence to ARV**

One of the study objectives was to determine acceptance and adherence to ARV among elderly persons in the case of Kakiri Health Centre HIV Clinic. To examine the relationship between acceptance and adherence the study looked at respondents' views which are presented in Table 5

Findings from table 5 above show that there was high acceptance and adherence to ARV among elderly persons in the case of Kakiri Health Centre HIV Clinic as shown with a mean of 2.524 and a standard deviation of 0.9211. This implies that on average their respondents agreed that they know the consequences of not visiting ART clinics, they are confident in using ARVs for survival, the environment provides new information that makes them adhere and they value antiretroviral treatment. Lastly, respondents acknowledged that fear of disclosure affects my adherence to ART.

Although respondent's acceptance was high, there were issues with adherence since patients reported several negative perceptions about HAART, these included fearing the side effects, concerns about strict adherence, inconveniences and practical problems associated with the different regimen, distrusting the conventional medicine, fearing long term damage to the body organs, and the perceptions about starting medication in the absence of symptoms. Mills *et al.,* (2006) noted that some patients had the perception that ART disrupts their routines creating a chaotic schedule; finding showed that HAART too is inconvenient or difficult to incorporate and these difficulties lead to coordinating adherence with work, and families or care giving responsibilities at homes. Difficulties in balancing the numerous strict dietary requirements associated with HAART; sleeping through a dose.

In light of the findings, it was discovered that respondents going for ART is always stressful to them since 88(54.3%) of the respondents agreed

Table 4: Descriptive statistics of Adherence to ARV

| | SD | D | A | SA | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| The ART clinic provides counseling services that promote my adherence. | 31(19.7%) | 53(32.7%) | 48(29.6%) | 30(18.5%) | 2.7617 | .98540 |
| There availability of ARV drugs make me to adhere to it. | 50(30.9%) | 55(34%) | 57(35.2%) | 00(00%) | 2.8667 | .97316 |
| Monitoring of CD4, viral load and optimistic injection make me to adhere. | 62(38.3%) | 70(43.2%) | 13(8.0%) | 17(10.5%) | 2.5642 | .81975 |
| Aggregate mean and Std. | | | | | 2.624 | .91909 |

at different levels. This implied that on average going for ART is stressful which affects adherence in one way or another. In addition, on whether respondents' ability to visit ART clinics is a must since they know the consequences, the findings show that 85(52.4%) of the respondents agreed at different levels while 77(47.6%) disagreed. This implies that respondents' ability to visit the ART clinic is a must due to the consequences of not attending. Based on the result half of the respondents know the consequences while the other half do not know.

This may account for the fact there is low adherence as found out through documentary analysis in which less than 43.2% of the respondents do not adhere to ARV. Concerning whether respondents are confident in using ARVs the findings show that 84(51.9%) of the respondents disagreed at different levels and 78(48.1%) agreed. This indicates that an average majority do not trust fully the ARV although they are using it. In this case, some use ARV for survival and some feel that their life depends on other things.

Regarding whether respondents perceive that the ART clinic provides necessary support during their visits to the clinic, the findings show that the majority 97(59.9%) of the respondents disagreed at different levels while 65(40.1%) agreed. In this case, the ART clinic does not provide necessary support during the respondent's visits which can be attributed to the fact that some people fear having time to talk and be counseled during the process. Indeed some ART clinics fail to be professional in dealing with adults and their adherence to ARVs which affects their adherence in different ways.

The study found out that respondents felt that their environment provides new information which makes them adhere to ART since 112(69.2%) of the respondents agreed at different levels while 50(30.8%) disagreed. This shows that the different means of promoting adherence through the media and other schools that are found within the environment enable the respondents to adhere to ART. In valuing antiretroviral treatment, the findings indicate that 89(54.9%) of the respondents agreed at different levels while 73(45.1%) disagreed. Several people value ART although some do not which may explain the numbers that fail to adhere to ART as found through

Table 5: **Descriptive statistics of Acceptance**

| | SD | D | A | SA | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Going for ART is always stressful to me. | 26(16%) | 48(29.6%) | 58(35.8%) | 30(18.5%) | 2.5679 | .97086 |
| My ability to do visit ART clinic is a must since I know the consequences. | 26(16%) | 51(31.5%) | 48(29.6%) | 37(22.8%) | 2.5926 | 1.01269 |
| I am confident in using ARV always for my survival. | 22(13.6%) | 62(38.3%) | 46(28.4%) | 32(19.8%) | 2.5432 | .95942 |
| I perceive that ART clinic provide necessary support to me during my visits at the clinic. | 33(20.4%) | 64(39.5%) | 47(29%) | 18(11.1%) | 2.3086 | .92100 |
| I feel my environment provide new information which makes me to adhere to ART. | 15(9.3%) | 35(21.6%) | 67(41.4%) | 45(27.8%) | 2.8765 | .92425 |
| I value antiretroviral treatment. | 23(14.2%) | 50(30.9%) | 54(33.3%) | 35(21.6%) | 2.6235 | .97812 |
| I have fear of long-term damage to body organs through the use of ARV. | 31(19.1%) | 76(46.9%) | 37(22.8%) | 18(11.1%) | 2.2593 | .89551 |
| I feel ART disrupts my routine or having a chaotic schedule. | 33(20.4%) | 84(51.9%) | 34(21%) | 11(6.8%) | 2.1420 | .81802 |
| Fear of disclosure affects my adherence of ART | 8(4.9%) | 48(29.6%) | 74(45.7%) | 32(19.8%) | 2.8025 | .81018 |
| Aggregate mean and Std. | | | | | 2.524 | 0.9211 |

documentary analysis.

The records from the ART clinic indicate that quite a good percentage do not adhere since they report one after some months have lapsed. The study found that respondents were not fearful damage of to their body organs due to the use of ARVs as shown by 107(66%) while only 55(34%) were found to be fearful do long term damage to body organs as a result of using ARVs.

In addition, it was found that ARTs do not disrupt routine or have a chaotic schedule as shown by 117(72.3%) who disagreed and 45(27.7%) who agreed. Therefore, ART does not disrupt respondents' routines or have chaotic schedules. Likewise, the study found that fear of disclosure affects adherence to ART as indicated by 106(65.5%). Those who fear finding it hard to follow the schedules for ART negatively impact their adherence.

In line with the findings of this study, Lyimo et al. (2014) noted that a client who is more knowledgeable about HIV, the importance of maintaining the recommended adherence levels would tend to follow all the instructions regardless of medication intake as compared to the clients with no any information. Some negative beliefs regarding the efficacy of HAART may have also influenced ART adherence behaviors resulting in non-adherence (Paterson, 2010). Poor adherence to drugs had also been associated with patients' desire to avoid embarrassment side effects (body rush) in certain situations such as on a date or at a job interview.

**Relationship between Acceptance and Adherence to ART**

The study hypothesized that there is no relationship between cognitive appraisals on adherence to ARV among elderly persons in the case of Kakiri health center HIV clinic.

There is a positive significant relationship between acceptance and adherence to ARV ($r = 0.369$, $p = 0.001$). The findings suggest that people with acceptance tend to have good adherence to ARV.

## 5. Discussion:

There was a high acceptance and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic is shown with a mean of 2.524 and a standard deviation of 0.9211. This agrees with a study by (Soomro *et al.,* 2019) which documented that older adults are considered adherent. In a study by (Soomro *et al.,* 2019), the meta-analysis compared adults' adherence, (72.15%) to young adults, (68.03%) who were adherent. This implied that on average their respondents agreed that they know the consequences of not visiting ART clinics, they are confident in using ARVs for survival, the environment provided new information that made them adhere and they valued antiretroviral treatment.

## 6. Conclusion

In light of the study findings, the study concludes that there was high acceptance and adherence to ARV among elderly persons living with HIV in the case of Kakiri Health Centre HIV Clinic.

**Recommendation**

In line with the first objective, the study recommends that there should be achievable psychological strategies like psycho-education exposed to the psychologists and counselor trainers so that they come up with effective and empirically proven psychological interventions for the families faced with acceptance and adherence to help affected victims in families. This will be helpful in the mitigation of poor adherence and its long-term effect on persons who have been affected by the situation.

**Acknowledgment**

I am grateful to God for the graces and well-being he gave me for the necessary completion of my research dissertation. I wish to express my sincere thanks to my Pastor Bishop Mutwanga Ezakiel for his spiritual, moral, and emotional support and the entire community of Kakiri Health Centre mostly administrator Major Ceaser Oyiki for his support and encouragement. I place on

Table 6: **below shows the correlation analysis of Acceptance and adherence to ARV**

| | | Adherence to ARV | Acceptance |
|---|---|---|---|
| Adherence to ARV | Pearson Correlation | 1 | .369** |
| | Sig. (2-tailed) | | .001 |
| | N | 162 | 162 |
| Acceptance | Pearson Correlation | .369** | 1 |
| | Sig. (2-tailed) | .001 | |
| | N | 162 | 162 |

**. Correlation is significant at the 0.01 level (2-tailed).

record my sincere thanks to Dr. Jane Frank Nalubega my supervisor you empowered me with the skills, you called me when I couldn't turn up may God bless the work of your hands, Dr. Sr Jane Francis Nantamu for the continuous psychological support and encouragement. I am also grateful to Dr. Kiyingi Frank rely in understanding my dynamics; Dr. Gesa Anthony your research information helped me. I am extremely thankful and indebted for sharing expertise, sincere and valuable guidance and encouragement extended to me. I take this opportunity to express gratitude to all my lecturers; MR. James Nsereko, Dr. Sr Jane Francis, Dr. Gesa Anthony, and Dr. Oluka Robert. I thank my course mates who encouraged me mostly Rwamahe Jostus my brother I can't thank you enough, Atwine Pricilla you encouraged me a lot, Joyce, Kabami, Jacinta,fr Vincent, Kasoozi, Kakooza is rely grateful for your support throughout the time it took me to write and complete this report thanks to Kakiri health Centre administration for co-operation and acceptance during the process of collecting data on upon. Last but not least I thank and appreciate my father, mother, wife, and children who imparted values of perseverance, hope, and self-love that helped me to do my best and complete this dissertation.

## Appendix A. References:

1) Gonzalez, J. S., Penedo, F. J., Antoni, M., Duran, R. E., McPherson-Baker, S., Ironson, G., Schneiderman, N. (2004). Social support, positive states of mind, and HIV treatment adherence in men and women living with HIVIAIDS. Health Psychology, 23(4), 41 3-41 8.https://doi.org/10.1037/0278-6133.23.4.413PMid:15264978

2) Kagee, A., &Delport, T. (2010). Barriers to Adherence to Antiretroviral Treatment The Perspectives of Patient Advocates. Journal of Health Psychology, 15(7), 1001-1011.https://doi.org/10.1177/1359105310378180PMid:20801946

3) Kelly, J. D., Hartman, C., Graham, J., Kallen, M. A., & Giordano, T. P. (2014). Social Support as a Predictor of Early Diagnosis, Linkage, Retention, and Adherence to HIV Care: Results from the Steps Study. Journal of the Association of Nurses in AIDS Care.https://doi.org/10.1016/j.jana.2013.12.002PMid:24508174 PMCid:PMC4125558

4) King, M. S., Brun, S. C., &Kempf, D. J. (2005). Relationship between Adherence and the Development of Resistance in Antiretroviral-Naive, HIV-1-Infected Patients Receiving Lopinavir/Ritonavir or Nelfinavir. Journal of Infectious Diseases, 191(12), 2046-2052.https://doi.org/10.1086/430387PMid:15897990

5) Kleeberger CA, Phair JP, Strathdee SA, (2001). Determinants of heterogeneous adherence to HIVantiretroviral therapies in the Multicenter AIDS Cohort Study. J Acquir Immune Defic-Syndr. 26:82-92. [PubMed: 11176272]https://doi.org/10.1097/00126334-200101010-00012https://doi.org/10.1097/00042560-200101010-00012

6) Kremer, H., Ironson, G., &Porr, M. (2009). Spiritual and mind-body beliefs as barriers and motivators to HIV-treatment decision-making and medication adherence? A qualitative study. AIDShttps://doi.org/10.1089/apc.2008.0131PMid:19133751 PMCid:PMC2856635

7) Massy Mutumba, Victor Musiime, James M. Lepkwoski, Gary W. Harper, Rachel C. Snow, Ken Resnicow& Jose A. Bauermeister (2016) Examining the relationship between psychological distress and adherence to anti-retroviral therapy among Ugandan adolescents living with HIV, AIDS Care, 28:7, 807-815https://doi.org/10.1080/09540121.2015.1131966PMid:27294696

8) Sophia A.H., Meron G.A., Mulugeta T., Karen L. A., Danielle G. & Carlos D. (2014). Spirituality, social capital and service: Factors promoting resilience among Expert Patients living with HIV in Ethiopia. Culture, Health & Sexuality 19(4), 286-298.https://doi.org/10.1080/17441692.2014.880501PMid:24520996 PMCid:PMC4033693

9) Creswell, J. (2013). Qualitative inquiry and research design: Choosing among five approaches (3rd Ed.). Los Angeles, USA: SAGE Publications.

10) Kothari (2013). A review of research and evidence. Berkshire: CfBT Education Trust.

11) Leserman, J. (2008). Role of depression, stress, and trauma in HIV disease progression. Psychosomatic Medicine, 70(5), 539-545.https://doi.org/10.1097/PSY.0b013e3181777a5fPMid:18519880

12) Soomro, N., Fitzgerald, G., Seeley, J. et al. Comparison of Antiretroviral Therapy Adherence Among HIV-Infected Older Adults with Younger Adults in Africa: Systematic Review and Meta-analysis. AIDS Behav 23, 445-458 (2019).https://doi.org/10.1007/s10461-018-2196-0PMid:29971732 PMCid:PMC6373524

## Appendix B. Publisher details:

**Publisher: Student's Journal of Health Research (SJHR)**
**(ISSN 2709-9997) Online**
**Category: Non-Governmental & Non-profit Organization**
**Email: studentsjournal2020@gmail.com**
**WhatsApp: +256775434261**
**Location: Wisdom Centre, P.O.BOX. 148, Uganda, East Africa.**