

Effectiveness of Behavioral Family Therapy in reducing depressive symptoms among older persons living with HIV/AIDS in Mbarara city, southwestern Uganda

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ABSTRACT

Background: Behavioral Family Therapy (BFT) is a type of psychotherapy designed to identify family patterns that contribute to a behavioral disorder or mental illness and, helps family members to break habits. Studies in the developed world have reported BFT as an effective intervention in the management of depression, anxiety, psychosis, Alzheimer's disease, learning disabilities and alcoholism. This intervention has not previously been used in Uganda. The current study aimed to assess the effectiveness of Behavioral Family Therapy in reducing depressive symptoms among older persons living with HIV/AIDS in Mbarara city, southwestern Uganda. This study was a follow up of a cross sectional study that was done among 265 older persons living with HIV/AIDS in Mbarara city where 22

patients (8.3%) had moderate- severe depression using PHQ 9 depression screening tool.

Methods: The study design was Randomized Control Trial (RCT). Twenty-two participants with depression were randomly allocated to receive either BFT (intervention group) or routine care (comparison group). For those who received BFT, prior appointments with them were made, visited at their homes, convened family meetings, assessed their capacity to handle depression, shared more about depression, risk factors, coping strategies and other ways of handling depression. They were then followed up to assess progress on the goals made. For those who received routine care, they got routine medical services that included individual counseling, laboratory investigation and drugs. After 4 months, the patients on both groups were reassessed

for depressive symptoms. Those who received BFT were reassessed at their homes while those of routine care were reassessed at their respective health facilities using PHQ-9 tool and thereafter, the findings were analyzed. The statistical methods used to investigate the statistical significance and practical significance were the t-test and effect sizes respectively. Thus, Impact measures/evaluation was based on differences of means using the ttest and practical significance was based on effect sizes (the Cohen's d).

Results: The results showed that the average depression scores in the Behavioral Family Therapy and routine care (control) groups differed at the stage of analysis by approximately 0.2 standard deviations. Cohen's d indicate that the average depression scores differed by approximately 0.2 standard deviations with 95% confidence intervals of (-0.64, 1.04). The confidence intervals for Cohen's d include the null value of zero. Thus the behavioral family therapy had small effect but not statistically significant. Therefore, we cannot completely rule out the possibility that the behavioral family therapy had no effect on depressive symptoms. Therefore, we conclude that the intervention had a small impact but not statistically significant on reducing depressive symptoms among older patients with HIV/AIDS accessing care in selected health facilities in Mbarara City, southwestern Uganda.

Conclusion: Behavioral family therapy (BFT) had a small effect on reducing the depressive symptoms among elderly HIV/AIDS patients but there is need to integrate behavioral family therapy in general management of patients with depression.

Key words: Behavioral Family Therapy, Depression, older person

BACKGROUND

Behavioral Family Therapy (BFT) is a type of psychotherapy designed to identify family patterns that contribute to a behavior disorder or mental illness and helps family members break those habits [1]. It was developed by Professor Ian Fallon and has been found to be effective in the management of depression, anxiety, psychosis, Alzheimer disease, learning disabilities and alcoholism [2]. BFT involves discussion and problem-solving sessions with the family [2]. Some of these sessions may be as a group, in couples, or one on one [1]. In BFT, the web of interpersonal relationships is examined and, ideally, communication is strengthened within the family [3].

Several studies have documented BFT to be effective in reducing depression among elderly persons living with HIV/AIDS. In Nepal for example, a study reported that incorporating family counseling and support services – with special focus on ameliorating negative interaction and bolstering emotional support – into HIV care and treatment services might help to improve mental health along with overall wellness and treatment outcomes for HIV-positive populations [5]. In Vietnam, a cross-sectional survey on 1,503 HIV-infected patients receiving antiretroviral therapy at two HIV clinics in Hanoi in 2016 established that social support from family and outside of family correlated with a lower proportion of depression [6]. In the United States of America, Home-Based Tele psychiatry and in-Home cognitive behavioral therapy (CBT) reduced major depression in HIV-Positive adults 50 years and older [7].

In sub-Saharan Africa, a systematic review on behavioral and cognitive interventions to improve treatment adherence and access to HIV care among older adults

METHODS

(50+) revealed that family initiated Home Based Counseling and Testing (HBCT) enabled a large number of newly diagnosed HIV- infected older persons to know their HIV status, leading to a change in care-seeking behavior and ultimately a decrease in depression and incidence of common infectious disease syndromes through appropriate treatment and care [8]. Another cross sectional study on anxiety and depression amongst patients enrolled in a public sector antiretroviral treatment programme in South Africa revealed that participating in a family support group (OR = 0.21, CI 0.05-0.99) was associated with decreased symptoms of depression [9].

However, BFT has no publicly available information on whether it has previously been used among elderly HIV/AIDS patients in Uganda but has been used in other countries like USA [7], Nepal [5], Vietnam [6] and Sub-Saharan Africa [8]. The absence of documented information on BFT effectiveness in reducing depression among the elderly creates a knowledge gap. This study therefore sought to assess the effectiveness of BFT in reducing depressive symptoms among elderly HIV patients accessing HIV care in selected health facilities Mbarara city, southwestern Uganda.

Study Hypothesis

There is no difference between BFT and routine care in reducing depressive symptoms in HIV/AIDS elderly patients. BFT has no effect in reducing depressive symptoms in older HIV/AIDS patients

Study Rationale

Previous studies conducted outside Uganda indicate that BFT is effective in reducing depression. However, no known study has been done in Uganda on effectiveness of BFT in reducing depression.

The randomized control study followed the cross sectional study that was done where 265 older patients living with HIV/AIDS were assessed for depression and found out that 22(8.3%) had depression This randomized control trial (RCT) was conducted among 22 depressed patients accessing services in selected health units in Mbarara city . 11 patents were administered BFT and 11 patients remained on routine care. The groups were selected according to the sites to avoid contamination and they were blinded. After a period of 4 months, the two groups were re-assessed for depression using PHQ 9 rating scale to find out whether BFT has effect on reducing depression. The study took place from November 2021 to July 2022

Study Population and Sample Size

All the 22 patients with moderate-severe depression according to PHQ-9 screening tool accessing HIV/AIDS services from TASO Mbarara and Mbarara Municipal Council H/C IV were considered for the study, as the number was small to do sampling.

Selection Criteria

Inclusion Criteria

Patients with moderate-severe depression who were home visited.

Exclusion Criteria

Patients with moderate-severe depression who did not consent to be home visited.

Randomization

Half of the patients (11) with moderate-severe depression were administered with BFT and another half remained on routine care. We used blocked

randomization which is a technique used to ensure that the number of subjects assigned to each group is equally distributed.

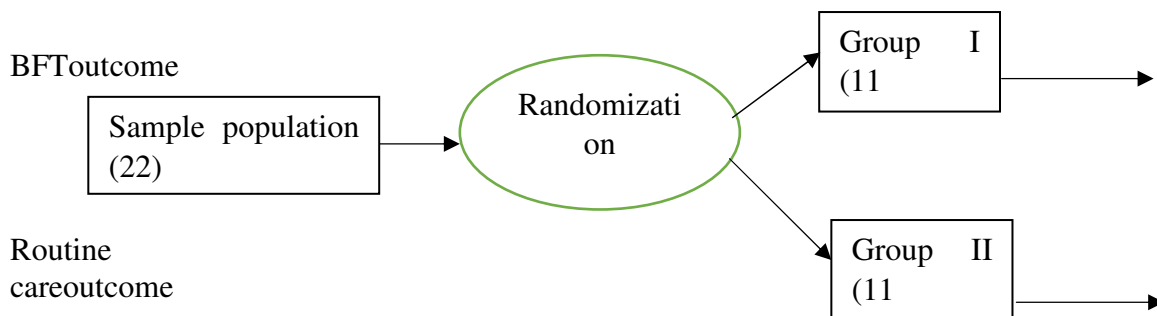


Fig 1. Showing how randomization was done

The 11 patients who were on BFT were getting services from TASO community drug distribution points (CDDPs), and of the 11 who were on routine care, 6 were getting services from TASO clinic at the center and 5 were getting services from Mbarara Municipal Council Health Centre IV. This was done to avoid contamination. The patients were blinded and did not know which group they belonged to. The data analyst and data collectors were blinded, did not know which patient was on intervention and on control group.

During the meeting, there was sharing with the family members about depression and its impact on the patient and the family members. Throughout the discussion, approach to the family members was positive; we recognized the experience and skills of family members, well knowing that that every family has its own culture.

Administration of BFT

Contact with the patient was made and an appointment made prior to home visits. The initial session was done on 5/11/2021 and it involved meeting of the patient with family members who were caring for him/ her. During the discussion, assessment of the individual family members finding out their communication and problem solving skills were explored. In collaboration with family members, family resources, problems and family system were explored.

During family engagement, every member involved in caring for the patient who wanted to take part in the discussion was allowed. The focus was put on identifying early warning signs and preventing relapse of depression. Many mental disorders tend to re occur if preventive measures are not put under consideration during care. The family members were helped to identify effective problem solving strategies. During the individual interviews with family members, background information of the problem, understanding depression in details, its signs and symptoms, risk factors and its impact on the family member were

explored. The need for goal setting was also shared with family members.

The family members were organized to select a day and time for weekly meetings, to have a chairperson and secretary for the meeting and always to give a report on the progress during the next visit of the Behavioral family therapist. During the discussion with family members, basic communication skills that involve expressing unpleasant or difficult feelings and active listening were employed. The family members were finally helped how to solve a problem and achieving a goal by finding out; what the problem or goal was, listening all possible options and helping them to choose the best solution and planning how to carry it out and review the results.

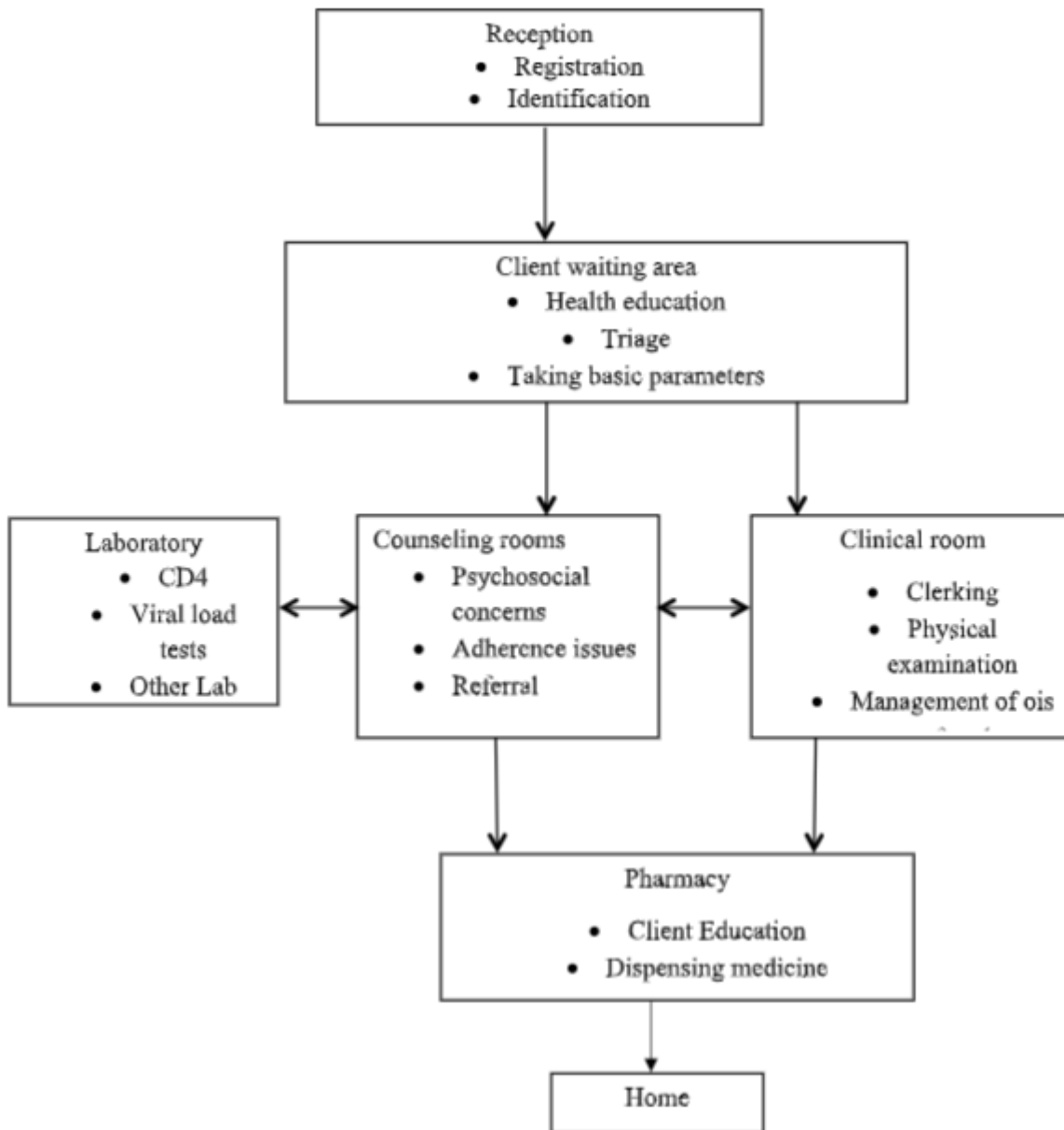
The family members were informed how the therapist would not be there always and therefore encouraged them to learn how to solve problems on their own. They were also encouraged to conduct problem-solving discussions, define their own stresses, risk factors of the disorder, strategies and plans. Members were informed that there would be periodic review of progress on individual patient's goals and family problem solving skills. Family members were assisted to define the future goals so as to commit themselves to continue family problem solving meeting on fixed weekly basis.

After a period of 4 months, the 11 patients who were administered BFT were followed up for the second session. During the second visit, the therapist reviewed the previous plans with the patient putting much emphasis on the agreed set goal and how they could solve their own problems without the therapist. During the process of BFT, administration there was no any lost to follow as patients telephone numbers and home addresses were properly recorded. Two weeks after the second session, all the 11 patients that were administered BFT together with those 11 patients that were on routine care were re assessed at the same time for depression to find out whether BFT had any effect on reducing depression.

Administration of Routine Care

Routine care as a concept of management of depression means a series of activities, which take place when patients come for services at their respective health units. In health centers, clients receive health education, triage and after which they are given individual counseling by their respective counselors. They then get medical assessment and treatment from the medical team. In this study, clients who were on routine care continued getting services normally from their respective health facilities.

Diagrammatic Flow of Patients in Routine Care



As described above, when clients come to the clinic, they receive health education, basic parameters taken, triaged and then sent to counselors or clinician depending on the concern. Those with psychosocial concerns are sent to counselors where they are given psychosocial support, adherence counseling, mental

health support, family support among others and some are referred where necessary. This approach remained the same when others on intervention arm were receiving BFT.

Data Collection

After a period of 4 months, both patients in the control and intervention arms were screened for depression at the same time using PHQ-9 depression screening tool and the findings were analyzed.

Data Analysis

Data analysis was done using STATA version 17, comparative analysis, hypothesis testing and effect size analyses were done.

Statistical Considerations

Impact measures were based on differences of means using the ttest and effect sizes analysis for testing the strength of the results.

Ethical Consideration

The study proposal and all protocols were approved by Mbarara University of Science and Technology Research Ethics Committee (MUSTREC-#16/02-21) and by the Uganda National Council for Science and Technology (HS2331ES). Administrative clearance was sought from Executive Director TASO and Mbarara City clerk through the In-Charges of Mbarara city Council/HC IV. . There was community engagement before entry of the community where the clients live. The community dialogue was conducted with the community leaders. They were approached and requested to consent for the services to be extended to their areas so as to allow the benefits of research be extended to the whole community such that the community residents from where the clients come from to be aware of what is going on. Administrative

clearance was also sought from the District Health Officers and community leadership in areas where BFT was administered. There were also discussions with the staff at the sites where the study was conducted such that the idea of the study was perceived right from the initial stages. Guidelines in regards to medical codes of conduct was followed. Informed consent was sought from the study participants' i.e. older HIV/AIDS clients with depression and their caretakers by providing an information sheet and a consent form to the participants. Detailed information about the purpose of the study, voluntary participation, freedom to withdraw from the study at any time without any consequences, was included on the information sheet. There was blinding of patients data collectors and analyst for routine care and BFT arms. Measures to ensure confidentiality and privacy regarding participants' identity and protection of information given was provided on the information sheet for them to make informed decisions regarding participation in the study for both clients at the facilities and family members of patients at their homes during BFT. Community engagement was done where by DHOs of the respective districts where the clients come from, were contacted and to allow the researcher engage with the patients in their communities. The family members and patients fully consented and confidentiality was observed

RESULTS

After the intervention of the behavioral family therapy, Mild depression (at a cut-off of 10) was

significantly higher among older persons who (i) were not currently married (widowed) compared to married ones (75% vs. 0.00%, $\chi^2 = 4.95$, $p = 0.026$) while the moderate depression was significantly higher among

more older persons who (ii) were currently married compared to their counterparts who were not married (100% vs. 25%, $\chi^2 = 4.95$, $p = 0.026$); (Table 1).

Table 1 Socio-demographic and socio-economic characteristics of the study participants by randomized arms (n = 22)

Variable	n (%)	BFT (intervention arm)			Routine care (control arm)		
		mild depression (n= 6),	Moderate Depression (n= 5),	χ^2 (p-value)	Mild depression (n=5)	Moderate depression n=6	χ^2 (p-value)
Age(mean±SD)	22(100)	64.27± 6.23	65.5± 5.91	5.9583(0.428)	64.35±5.1	63.5± 5.2	5.6222(0.345)
Gender							
Male	7 (31.82)	1 (33.33)	2 (66.67)	0.7486(0.387)	2(50.00)	2(50.00)	0.0524(0.819)
Female	15 (68.18)	5 (62.50)	3 (37.50)		3(42.86)	4(57.14)	
Marital status							
Currently married	8(36.36)	0(0.00)	3(100.00)	4.95(0.026)	2(40.00)	3(60.00)	0.1100(0.740)
Not currently married	14(63.64)	6(75.00)	2(25.00)		3(50.00)	3(50.00)	
Employed							
Yes	9(40.91)	2(40.00)	3(60.00)	0.1880(0.665)	2(50.00)	2(50.00)	0.0524(0.819)
No	13(59.09)	4(66.67)	2(33.33)		3(42.86)	4(57.14)	
Average monthly income							
less than or equal to Ugx 100,000	18(81.82)	6(54.55)	5(45.45)	-	4(57.14)	3(42.86)	1.0607(0.303)
100,001 and above	4(18.18)	0(0.00)	0(0.00)		1(25.00)	3(75.00)	

Testing differences Between the Treatment Groups

We used statistical methods such as t-tests to assess the differences between the treatment groups. We computed t-statistic to test the null hypothesis that the average depressive symptom scores are the same in the Behavioral Family Therapy (intervention) and routine care (control) groups.

The results show that the patients on behavioral family therapy had a smaller mean compared to those on routine care (ie9.18 vs 9.64)with the difference of 0.46 or 46%. The difference is reported as positive because t-test calculated Control minus Treated.

The t-statistic equals 0.4763 and its two-sided p-value of 0.6390 indicates that the difference between the depressive symptom scores in the two groups is not

statistically significant. Hence fail to reject the null hypothesis of no difference/effect (Table2).

Table 2. The differences between the means for the intervention vs control groups

Group	N	Mean	Std.error	Std.dev	95% Conf. Interval	t-statistic	p-value
Routine care	11	9.64	0.77	2.54	7.93 11.34	0.4763	0.6390
BFT	11	9.18	0.57	1.89	7.91 10.45		
Combined	22	9.41	0.46	2.197	8.44 10.38		
Difference		0.46	0.95		-1.54 2.45		

Impact Evaluation

The statistical significance and P-values, do not tell us anything about practical significance. The P-values do not assess practical significance. The size of the effect is the appropriate analysis method to assess the practical significance in randomized control trials. We therefore directly compared the relative effect of the treatment using effect sizes: The results show that the average depressive symptom scores in the Behavioral Family Therapy and routine care (control) groups differ by approximately 0.2 standard deviations. Cohen’s d indicate that the average depression scores differ by approximately 0.2 standard deviations with 95%

confidence intervals of (-0.64, 1.04). Also Hedges’s g indicate that the average depression scores differ by approximately 0.2 standard deviations with 95% confidence intervals of (-0.61, 0.999). The confidence intervals for Cohen’s d and Hedges’s g include the null value of zero. Therefore we fail to reject the null hypothesis of no effect and conclude that behavioral family therapy had no effect on depression but according to Cohen’s d estimate of 0.2, the effect size is classified as small though not statistically significant. Thus, we cannot completely rule out the possibility that the behavioral family therapy had no effect on depression scores (Table3).

Table 3. Effect size based on mean comparison

	Observations per group	
	On routine care (control) (n=11)	On BFT(treatment) (n=11)
Effect Size	Estimate	[95% Conf. Interval]
Cohen's d	0.2030944	-0.6374815 1.038654
Hedges's g	0.1953655	-0.6132219 0.9991276
Glass's Delta 1	0.1789141	-0.6647644 1.013848
Glass's Delta 2	0.2407857	-0.607253 1.077136

DISCUSSION

The overall objective was to assess the effectiveness of Behavioral Family Therapy (BFT) in reducing depressive symptoms among elderly HIV patients accessing HIV care in selected health facilities Mbarara city, southwestern Uganda. The study was conducted during COVID 19 lockdown. This was the time where transport was a challenge and this coupled with the government standard operating procedures for corona virus prevention like social distancing, could have affected the outcome. Relatedly, the clients were followed for after 4 months from the initial visit. This interval could have affected the outcome. The results probably would have been different if these clients were followed on monthly basis. The results show that the patients on behavioral family therapy had a smaller mean compared to those on routine care (ie 9.18 vs 9.64) with the difference of 0.46 or 46%. This implied that home environment is supportive in reducing depression [6]. The smaller mean also implies that routine care is also helpful in reducing depression, probably the way it was being carried out especially during COVID 19 lockdown where even some patients were represented by relatives. The time spent between service provider, patient was reduced, and this could have affected outcome. Findings revealed that depression after intervention had reduced in widows compared to married couples. This probably is related to gender based violence that is common in families. In many African societies, family members disagree on

issues like property sharing and control. These issues related to property sharing, poverty and income levels were found to be responsible for depression. The administration of behavioral family therapy involved sharing with family members, assessing family support systems and coping strategies. This is in agreement with [5] whose study done in Nepal found out that social support in families contribute to reduction of depression. Although the effectiveness of BFT for reducing depression was not statistically significant, the size of population and timing of the study should not be under-rated

Study Limitations

This study was done considering a small proportion of patients who had moderate to severe depression and the clients were followed only 2 times in 4 months. It is clearly understood that behavior change and reduction of depressive symptoms in most cases takes long to disappear. This probably can explain the study findings and effect of the intervention

CONCLUSIONS

Behavioral family therapy has a small effect in reducing depressive symptoms in elderly HIV/AIDS patients but this should not be ignored.

RECOMMENDATIONS

There is need for government to integrate behavioral family therapy in the routine management of

patients with depression as it was found to have effect on depression.

Again, another comprehensive study covering a wider area and bigger sample size should be done in the region especially at a time when there is no movement restrictions of people as it was during lockdown as the government considers adopting this type of psychotherapy.

Government should strengthen care and management of mental patients as the number of cases are on increase.

Interventions to reduce gender-based violence should be encouraged

AREAS FOR FURTHER RESEARCH

The study was done among the older persons living with HIV/AIDS. There is however need to widen the scope and consider other age groups especially the adolescents. There is need to compare BFT and other forms of psychotherapy. The study only considered depression yet depression in severe forms comes with suicidal tendencies. Further research should consider suicidal ideations in older persons living with HIV/AIDS. There is also need to consider older adults with depression comorbid with anxiety disorders.

FUNDING

The researcher did not get any funding

CONFLICT OF INTEREST

There was no conflict of interest from the start to the end of the study

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May the Almighty God richly and immeasurably reward you all!

LIST OF ABBREVIATIONS

ART	-Anti-Retroviral Therapy
BFT	-Behavioural Family Therapy
CBT	-Cognitive Behavioral Therapy
H/C	-Health Centre
HIV	-Acquired Immune Deficiency virus

PHQ -Patient Health Questionnaire
TASO -The AIDS Support Organization
CD4 -Cluster Differentiation Cells
DHO - District Health Officer
ARVs -Antiretroviral Drugs
AIDS -Acquired Immune Deficiency Syndrome
RCT -Randomized Control Trial
AOR - Adjusted Odds Ratio
MRRH -Mbarara Regional Referral Hospital
SPSS -Statistical Package For Social Scientists
COVID 19-Corona Virus Disease 2019
MUST- REC -Mbarara University of Science and
Technology Research Ethical Committee
CI - Confidence intervals

REFERENCES

- [1] Falloon I: Handbook of Behavioural Family Therapy: Routledge; 2015.
- [2] Edge RS: Journeys into Recovery: Family Narratives of First Episode Psychosis and Behavioural Family Therapy. Staffordshire University; 2015.
- [3] Carr A: The evidence base for couple therapy, family therapy and systemic interventions for adult-focused problems. *Journal of Family Therapy* 2014, 36(2):158-194.
- [4] Rosland A-M, Heisler M, Piette JD: The impact of family behaviors and communication patterns on chronic illness outcomes: a systematic review. *Journal of behavioral medicine* 2012, 35(2):221-239.
- [5] Amiya RM, Poudel KC, Poudel-Tandukar K, Pandey BD, Jimba M: Perceived family support, depression, and suicidal ideation among people living with HIV/AIDS: a cross-sectional study in the Kathmandu Valley, Nepal. *PloS one* 2014, 9(3):e90959.
- [6] Matsumoto T, Kimura T, Hayashi T: Does Japanese citrus fruit yuzu (*Citrus junos* Sieb. ex Tanaka) fragrance have lavender-like therapeutic effects that alleviate premenstrual emotional symptoms? A single-blind randomized crossover Study. *The Journal of Alternative and Complementary Medicine* 2017, 23(6):461-470.
- [7] Rhee J, Chan E, Elizondo III P: Home-Based Telepsychiatry and in-Home CBT for Management of Major Depression in HIV-Positive Adults 50 Years and Older: A Proof-of-Concept Study. *Acta Psychopathol* 2017, 3:3.
- [8] Knight L, Mukumbang FC, Schatz E: Behavioral and cognitive interventions to improve treatment adherence and access to HIV care among older adults in sub-Saharan Africa: an updated systematic review. *Systematic Reviews* 2018, 7:1-10.
- [9]. Pappin M, Wouters E, Booysen FL: Anxiety and depression amongst patients enrolled in a public sector antiretroviral treatment programme in South Africa: a cross-sectional study. *BMC public health* 2012, 12:1-9.

