Journal of
Advanced Psychology
(JAPSY)

Effect of Cognitive Behavioural Therapy (CBT) Among Subjects with Alcohol Use Disorder (AUD) in Uganda: A Comparative Study of Treatment Groups

CARI
Journal

Journal of Advanced Psychology
ISSN: 2791-3244 (Online)
Vol. 6, Issue No.1, pp 70 - 83, 2024
www.carijournals.org

Effect of Cognitive Behavioural Therapy (CBT) Among Subjects with Alcohol Use Disorder (AUD) in Uganda: A Comparative Study of Treatment Groups

[1*]Richard Kyazze, MA, [2]Charles Natuhamya, MS [3]Edson Mwebesa, MS [4]Frank Kiyingi, PhD, [4]Miph Musoke, PhD, [5]Nazarius Mbona Tumwesigye, PhD

[1]Serenity Medical Center Uganda

[2]Uganda Youth Development Link.

[3]Muni University.

[4]Nkumba University.

[5]Makerere University.

https://orcid.org/0009-0003-0552-7848

Accepted: 17th Aug 2024 Received in Revised Form: 26th Aug 2024 Published: 26th Sep 2024

Abstract

Background: Regardless of diverse interventions aimed at achieving recovery and maintaining sobriety, alcohol use disorder, a leading global risk factor for mortality and morbidity, remains prevalent in Uganda. It's worth noting that even after long stays in treatment facilities, recovering individuals are still prone to relapse. Of importance, however, is the knowledge of the effect of treatment interventions on recovery during and after rehabilitation. Hence, this study seeks to determine the impact of CBT as an intervention among alcohol-dependent individuals and assess its relevancy after rehabilitation.

Methodology: This study enrolled 196 individuals with alcohol dependence from 5 treatment centers in the treated and control groups on a 1:1 enrollment basis. Individuals in the treated group were those in the rehabilitation centres receiving CBT while the control group included individuals in the community who were off CBT treatment. A linear regression model was fit to the data to determine the effect of CBT on the recovery status. Interaction terms between the participants' treatment group and CBT were included to assess the difference between the two groups.

Findings: CBT enhanced character development ($\beta = 1.37$, $p < 0.001$), healthy living ($\beta = 0.88$, $p < 0.001$), productive engagements ($\beta = 1.12$, $p < 0.001$), and overall recovery status ($\beta = 3.38$, $p < 0.001$). The overall effect of CBT was higher among individuals receiving treatment as compared to their counterparts.

Unique Contribution to Theory, Practice and Policy: Incorporating aftercare CBT treatment may enhance the recovery status of individuals grappling with alcohol dependence and prevent immediate relapse. Policymakers and licensing agencies of treatment centres should incorporate aftercare treatment for CBT and similar interventions.

Keywords: *Alcohol Dependence, Alcohol Recovery, Cognitive Behavioural Therapy, Rehabilitation, Relapse*

Background

Alcohol use disorder is a global problem with diverse negative consequences, contributing to 5.3% of all global deaths in 2016 (WHO, 2019). In Uganda, it is a significant mental health outcome with prevalence estimated at 10% in 2016 (Kabwama et al., 2016) which is likely to increase partly because of the startling trend of risky drinking patterns among alcohol users, which includes adolescents and young adults (Swahn et al., 2013). In addition, alcohol misuse is a leading global risk factor for premature mortality (Park & Kim, 2020) and a prominent global risk factor for disease burden (Sohi et al., 2021). For example, in a previous study, alcohol consumption was associated with higher risks of 61 diseases (Im et al., 2023). Alcohol abuse affects both physical and mental states in human beings (Brennan et al., 2020; Varghese & Dakhode, 2022) including brain damage, cardiovascular diseases, and cancer (Nutt et al., 2021; Pohl et al., 2021; Roerecke, 2021; Rumgay et al., 2021). Despite these adverse effects, Uganda still ranks among the leading alcohol consumer countries globally recently consuming 12.2 litres of alcohol annually, which is higher than the global average of 6.18 litres (WHO, 2023).

Cognitive behavioural therapy (CBT), an effective treatment for many psychiatric conditions (Fenn & Byrne, 2013) has been one of the most important and effective treatments of psychopathology in the past decades (Hofmann, 2021; Tolin, 2010), notably recognized globally as proven therapy (Neufeld et al., 2021). Besides, CBT has been proven effective in the treatment of alcohol use disorder (Carroll & Kiluk, 2017; Magill et al., 2023) and substance use disorders in general (McHugh et al., 2010). Despite the increasing burden of AUDs and the availability of evidence-based interventions like CBT, access to appropriate treatment remains low and the treatment gap remains substantial, especially in low and middle-income countries like Uganda (Nadkarni et al., 2023). Besides, there is limited evidence of AUD interventions being incorporated in healthcare settings in sub-Saharan Africa, calling for an urgent need for studies that evaluate such interventions (Mushi et al., 2022).

Some studies on CBT in Africa have been carried out. For example, a study demonstrated the effectiveness of CBT in depression treatment in HIV settings in South Africa (Everitt-Penhale et al., 2019), and another study in Kenya investigated its effect on opioid use disorder (Kiburi et al., 2023). Also, in Somalia, a study assessed CBT's feasibility on language, methods, and cultural acceptability (Verhey et al., 2020). Whereas in Uganda, a previous CBT study was carried out to evaluate its effect on mental well-being among children's caregivers (Namasaba et al., 2022). Additionally, several studies globally have investigated the effect of CBT on relapse (Chen et al., 2019; Srivastava et al., 2022), on mental health in alcohol use (Can Gür & Okanli, 2019), and on substance disorder in general (Alavi et al., 2023) with no attention on its direct effect on recovery status, which is key to relapse prevention and sobriety.

To our knowledge, no study in these settings has been carried out to investigate the effect of CBT among alcohol addiction-recovering individuals. Hence, the current study aimed to assess the impact of CBT on the recovery status of individuals with alcohol addiction, while determining its possible long-term significance in recovery.

Methods

Data sources and study population

The current study was based on a cross-sectional design to collect the secondary data to assess the study objectives. Survey questionnaires were administered to the selected respondents. The study enrolled individuals with alcohol addiction who were admitted to five treatment centers (Butabika National Referral Mental Hospital, Serenity Centre, Recovery Solutions, National Care Centre, and Hope and Beyond). The main respondents of the study were individuals from the five selected treatment facilities who had maintained sobriety after treatment for at least 24 months and above (control) and those who had relapsed after residential treatment within 1 week and 6 months and were readmitted (treated).

Krejcie and Morgan's 1979 table for sample size selection was used to select the study participants from a target population of 400 patients across the five facilities, encompassing both relapse and non-relapse groups. Based on this selection method, a sample of 196 respondents was selected from all facilities, ensuring the representation of both relapse and non-relapse groups. The sampling strategy involved a proportionate selection of participants from each treatment center, resulting in a balanced and representative sample from the five treatment facilities.

Each participant signed a consent form before participating in the study. Individuals who could neither read nor write were assisted by a literate individual to understand the form and used a thumbprint instead of a signature. Questionnaires were filled from private rooms within the treatment centers and family members who were the immediate caregivers of the clients were contacted privately and interviewed from convenient and private locations, including their homes. No identifying information, such as names was obtained.

Measures

Cognitive behavioural Therapy (CBT): This was measured using one of the subscales of care services using 6 items. All items were rated on a 5 Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In this study, the tool had a moderate internal consistency (Cronbach's $\alpha = 0.78$).

Family functionality of parent: This was measured using the functionality of parent subsystem tool, a 4-items scale assessed on a 5 Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items included; "My parents/significant other generally discuss most things with each other as a couple" and "My parents/ significant other value their relationship." The sum score ranges from 4 to 20 and a higher score represents better functionality of parents. The tool had a high internal consistency (Cronbach's $\alpha = 0.95$).

Functionality of sibling: It was assessed using the functionality of sibling subsystem tool, a 4-item scale was measured on a 5 Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items included; "I usually get along with my siblings" and "My siblings care for me."

The sum score ranged from 4 to 20. The tool had a high internal consistency (Cronbach's α = 0.94).

Functionality of spouse: We assessed this using the functionality of spouse subsystem, a 4-item scale was assessed on a 5 Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The sum score ranges from 4 to 20 and a higher score represents better functionality of spouses. In this study, the tool had a high internal consistency (Cronbach's α = 0.94).

Nature of family communication: This was measured by 4 subscales including the clear and direct (5 items), the clear and indirect (6 items), the masked and direct (4 items), and the masked and indirect (5 items). All items were rated on a 5 Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The sum score ranged from 19 to 95. The internal consistency was high (Cronbach's α = 0.96).

Alcohol addiction recovery: The alcohol recovery status was measured by 3 subscales including character developments (8 items), healthy living (7 items), and productive engagements (9 items). The internal consistency in this study was high (Cronbach's α = 0.95).

We used the constructs of recovery status including character development, healthy living, and productive engagements, which are related to better alcohol use recovery (Huang & Smedema, 2023), and the overall recovery status as the outcome variables in the study.

The outcome variables in this study were character development, healthy living, productive engagements, and recovery status. The independent variables were the functionality of parent subsystem, the functionality of sibling subsystem, the functionality of spouse subsystem, clear and direct communication, clear and indirect communication, masked and direct communication, and masked and indirect while the main independent variable was CBT.

Statistical analyses

Descriptive statistics, presented as counts and percentages were used to describe the background characteristics of the study participants. Further, measures of central tendencies (mean and standard) were measured and presented by participants' treatment status, and the difference in the mean was tested using the t-test to assess the mean difference between the two treatment groups (Drummond & Tom, 2011; Kim, 2015; Mishra et al., 2019).

To assess the effect of CBT on character development, healthy living, productive engagement, and overall recovery status, 4 multivariable models were fit to the data with CBT as the main independent variable. An interaction term between the participant's treatment group (treated versus control) and the CBT score was included to determine the moderation effect of the treatment on the relationship between CBT and the four outcome variables of recovery.

Results

Demographic characteristics

Most respondents were below 40 years of age (66.7%), male (85.9%), Christian (91,7%), and almost all had attained either secondary (50%) or tertiary education (49%). Respondents were

evenly distributed across study groups (treatment and control). Details of the results are in Table 1.

Table 1: Demographic characteristics by participant's treatment status (N = 192).

Characteristic	Control (n=96)	Treated (n=96)	Total (N=192)
Age			
18-29	32 (33.3)	38 (39.6)	70 (36.5)
30-39	28 (29.2)	30 (31.3)	58 (30.2)
40-49	28 (29.2)	19 (19.8)	47 (24.5)
50-59	6 (6.3)	9 (9.4)	15 (7.8)
60 years and above	2 (2.1)	0 (0.0)	2 (1.0)
Gender			
Male	84 (87.5)	81 (84.4)	165 (85.9)
Female	12 (12.5)	15 (15.6)	27 (14.1)
Education level			
Primary	0 (0.0)	2 (2.1)	2 (1.0)
Secondary	43 (44.8)	53 (55.2)	96 (50.0)
Tertiary	53 (55.2)	41 (42.7)	94 (49.0)
Religion			
Christian	89 (92.7)	87 (90.6)	176 (91.7)
Moslem	0 (0.0)	3 (3.1)	3 (1.6)
Other	7 (7.3)	6 (6.3)	13 (6.8)

Description of the model variable

Overall, the mean was equally distributed among the study groups except for the masked and direct and masked and indirect communication whose difference in the means between the treatment groups was significant by the t-test results. Details of these results are in Table 2.

Table 2: Descriptive statistics of sum scores of the model variables (N = 192).

Variable	Overall (N=192)	Treatment (N=96)	Control (N=96)	p
	Mean (SD)	Mean (SD)	Mean (SD)	
Functionality of parent	11.86 (5.53)	11.92 (5.63)	11.81 (5.45)	0.896
Functionality of sibling	11.74 (5.51)	11.71 (5.35)	11.78 (5.69)	0.927
Functionality of spouse	12.13 (5.40)	11.76 (5.23)	12.49 (5.56)	0.351
Clear and direct	14.69 (6.83)	14.40 (6.81)	14.99 (6.88)	0.549
Clear and indirect	17.67 (7.06)	17.00 (7.88)	18.34 (6.10)	0.188
Masked and direct	11.90 (5.30)	10.97 (5.24)	12.83 (5.21)	0.014
Masked and indirect	15.22 (6.28)	13.90 (6.00)	16.55 (6.31)	0.003

p: p-value for the paired t-test results

Effect of cognitive behavioural therapy (CBT) on recovery

Higher cognitive behavioral therapy scores were associated with higher character development scores (β = 1.37, p < 0.001), higher healthy living scores (β = 0.88, p < 0.001), higher productive engagement scores (β = 1.12, p < 0.001), and higher overall recovery status scores (β = 3.38, p < 0.001). In addition, the functionality of parent subsystem (β = -0.75, p < 0.05) and the functionality of sibling subsystem (β = 0.66, p < 0.05) were associated with character development. CBT treatment significantly moderated the relationship between character development scores (β = -0.81, p < 0.001), healthy living scores (β = -0.94, p < 0.001), productive engagement scores (β = -1.02, p < 0.001), and overall recovery status scores (β = -2.77, p < 0.001). Results are shown in Table 3.

Table 3: Multivariable linear regression analysis of the effect of CBT on Character development, healthy living, productive engagements, and recovery status (N = 192).

Variable	Character development (β)	Healthy living (β)	Productive engagements (β)	Recovery status (β)
CBT	1.37***	0.88***	1.12***	3.38***
Participant (Control)	13.71***	15.57***	18.45***	47.73***
CBT*Participant (Control)	-0.81***	-0.94***	-1.02***	-2.77***
Functionality of parent	-0.75*	-0.44	0.02	-1.17
Functionality of sibling	0.66*	0.56	0.18	1.41
Functionality of spouse	0.15	-0.41	0.01	-0.24
Clear and direct	-0.31	0.01	-0.25	-0.55
Clear and indirect	0.14	0.27	-0.03	0.39
Masked and direct	-0.25	-0.36	-0.14	-0.75
Masked and indirect	-0.08	0.08	-0.06	-0.06

***p < 0.001, ** p < 0.01, *p < 0.05

Journal of Advanced Psychology
ISSN: 2791-3244 (Online)
Vol. 6, Issue No.1, pp 70 - 83, 2024
www.carijournals.org

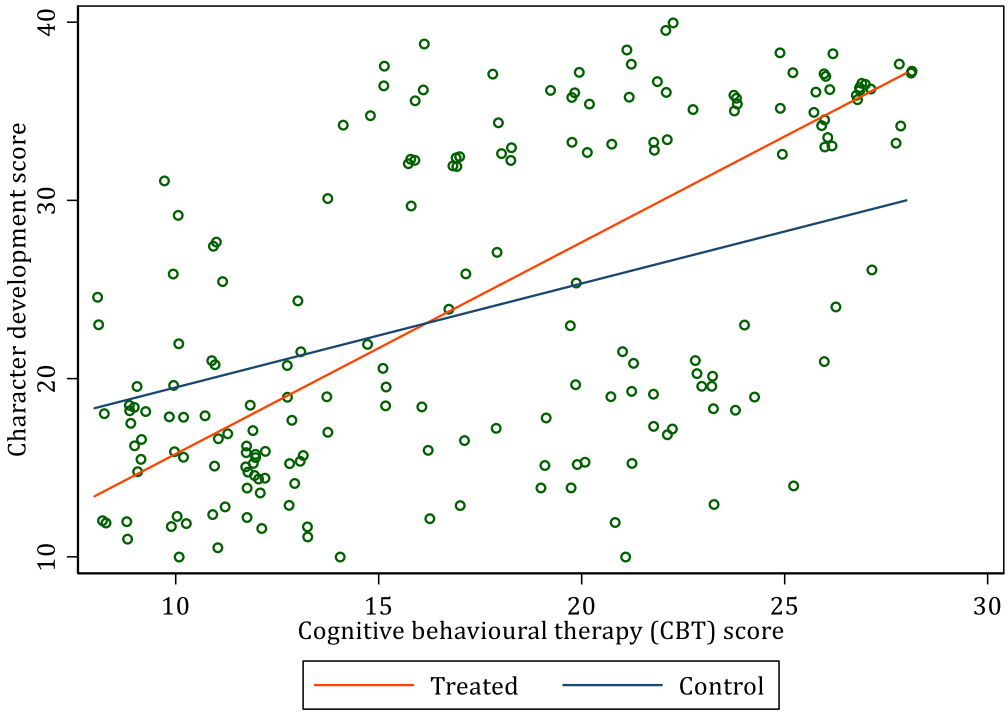

Figure 1: Effect of cognitive behavioural therapy (CBT) on character development

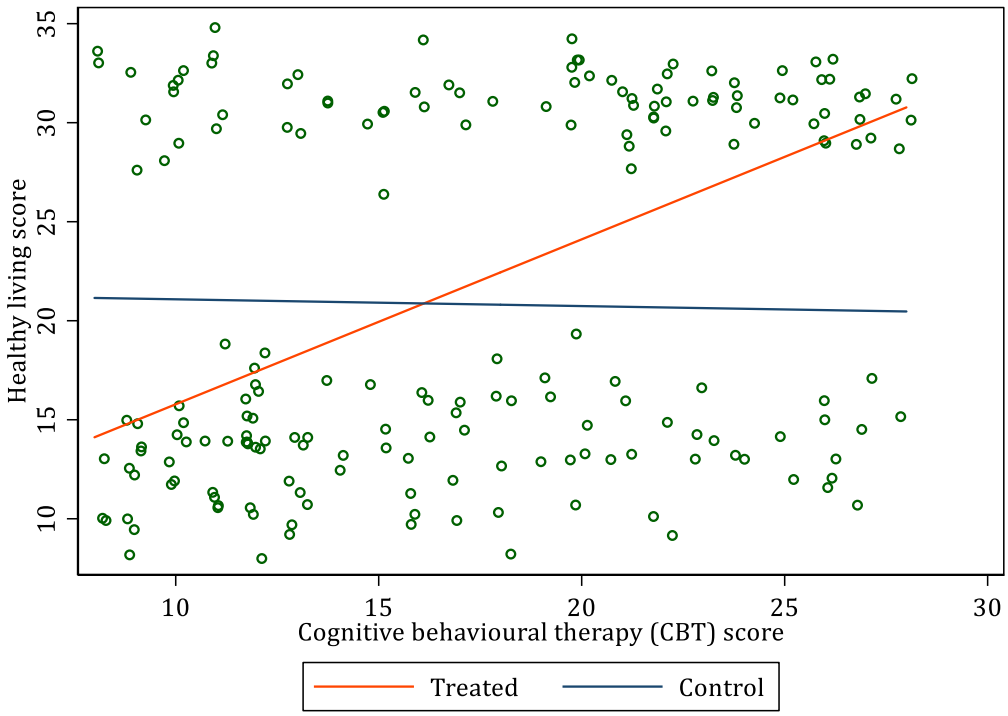

Figure 2: Effect of cognitive behavioural therapy (CBT) on healthy living

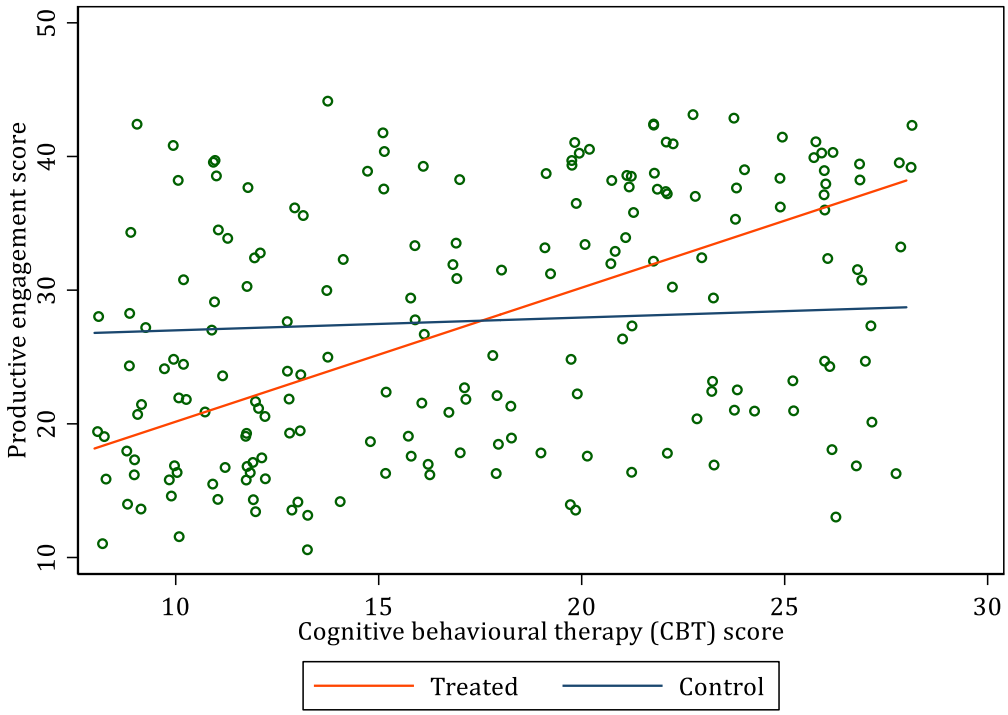

Figure 3: Effect of cognitive behavioural therapy (CBT) on productive engagement

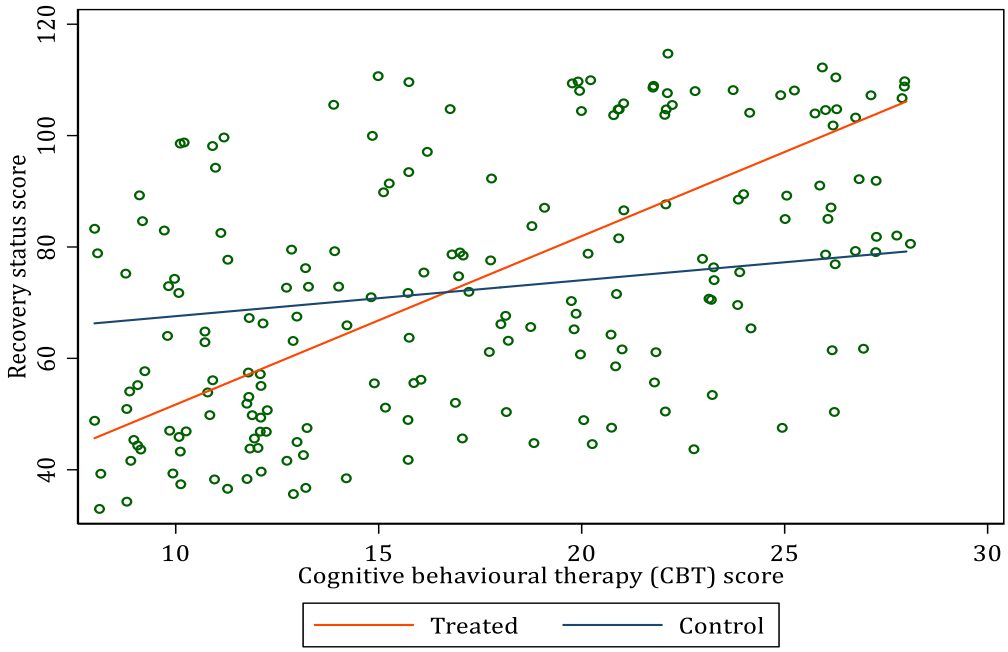

Figure 4: Effect of cognitive behavioural therapy (CBT) on recovery status

Discussion

The current study aimed to assess the effect of CBT on recovery, which was measured by character development, healthy living, and productive engagement constructs. The study confirmed a positive impact of CBT on character development ($\beta = 1.37$, $p < 0.001$), healthy living ($\beta = 0.88$, $p < 0.001$), productive engagements ($\beta = 1.12$, $p < 0.001$), and overall recovery status ($\beta = 3.38$, $p < 0.001$). However, this effect was higher among individuals re-admitted at rehabilitation centers (receiving CBT treatment) by the time of the study as compared to their counterparts in the community (the control group) who were not under CBT treatment at the time.

The results are consistent with findings from previous studies that indicated that healthy lifestyle components in CBT contribute to enhanced healthy living (Jelalian et al., 2019), a component of recovery status in this study. In addition, CBT was reported effective in improving health-related quality of life among atrial fibrillation (Minjie et al., 2023). Similarly, a recent study also highlighted the positive effect of CBT as a component of continuing care on the overall recovery status of individuals and its importance in the treatment of alcoholism (Kyazze et al., 2024).

Though rehabilitation can significantly reduce the risk of alcohol relapse (Peeraphatdit et al., 2020), this study confirms the existing evidence that even after rehabilitation, some individuals are prone to relapse, underscoring the fact that recovery is a continuing process (Martinelli et al., 2023). Relapse after rehabilitation is partly due to the lack of recovery communities and aftercare services which are key to recovery capital (Harrison et al., 2020) that is critical for the successful treatment of alcohol dependence (Ito & Donovan, 1986).

Our current study also demonstrated that CBT might be more effective on a long-term plan. This was shown by individuals who relapsed after having been previously admitted to rehabilitation (currently under treatment). When these individuals were readmitted and re-introduced to CBT as is always the case after detoxification, to enhance their lifestyles (values, attitudes, and behaviours), their CBT scores increased as compared to their counterparts who were still sober (in the control group).

Findings from a previous study also recommended adequately lengthy CBT treatment for recovery (Banyard et al., 2021). Hence, after treatment, psychosocial aspects of individuals need to be assessed before they are released back into their communities as they can be useful in facilitating continual recovery, especially after rehabilitation (Pettersen et al., 2023). Besides lengthening CBT treatment, the intensity of CBT as an alcohol disorder treatment combined with medical, psychological, educational, and physical interventions may significantly enhance aftercare abstinence (Fiabane et al., 2019).

With new technology, CBT is constantly evolving into a flexible and effective intervention unlike other therapies (Carroll & Kiluk, 2017) by providing automated mobile health interventions for counseling, and extended monitoring programs (McKay, 2021). For example, CBT is available in digital formats (Magill et al., 2023) and can be provided via internet-based

options (Sundström et al., 2017). This can be useful to recovering individuals in hard-to-reach areas at any time and place, offering an efficient yet effective solution.

The current study determined the effect of CBT on recovery among subjects with alcohol dependency. It also highlighted the need to incorporate CBT aftercare services for recovering individuals. However, the study had limitations. First, the measured variables were based on self-reporting which is prone to bias. Secondly, the study was based on a cross-section design hence inference on causation may not be drawn. Finally, the study findings may not apply to other populations, for example, those from different regions of the country.

Conclusion

Regardless of the limitations, the study essentially revealed the positive effect of CBT in alcohol dependence treatment, highlighting its possible significance in aftercare treatment. The results of this study contribute to the emergent literature on alcohol dependence treatment in Uganda.

Recommendations

The low rate of recovery among individuals in the community post-rehabilitation underscores the vital role of CBT aftercare treatment. Policymakers and licensing agencies of treatment centres prioritize aftercare CBT treatment and similar interventions. Future research should explore the optimal length of CBT aftercare treatment and its long-term effect on alcohol dependence recovery.

References

Alavi, S. M. A., Irani, R. D., Fattahi, P., & Pakseresht, S. (2023). Effects of brief cognitive behavioral therapy on mental health in substance-related disorder: a randomized controlled trial. *BMC Psychiatry*, *23*(1), 924. https://doi.org/10.1186/s12888-023-05413-4

Banyard, H., Behn, A. J., & Delgadillo, J. (2021). Personality Disorders and Their Relation to Treatment Outcomes in Cognitive Behavioural Therapy for Depression: A Systematic Review and Meta-analysis. *Cognitive Therapy and Research*, *45*(4), 561–576. https://doi.org/10.1007/s10608-021-10203-x

Brennan, S. E., McDonald, S., Page, M. J., Reid, J., Ward, S., Forbes, A. B., & McKenzie, J. E. (2020). Long-term effects of alcohol consumption on cognitive function: a systematic review and dose-response analysis of evidence published between 2007 and 2018. *Systematic Reviews*, *9*(1), 33. https://doi.org/10.1186/s13643-019-1220-4

Can Gür, G., & Okanli, A. (2019). The Effects of Cognitive-Behavioral Model-Based Intervention on Depression, Anxiety, and Self-Efficacy in Alcohol Use Disorder. *Clinical Nursing Research*, *28*(1), 52–78. https://doi.org/10.1177/1054773817722688

Carroll, K. M., & Kiluk, B. D. (2017). Cognitive behavioral interventions for alcohol and drug use disorders: Through the stage model and back again. *Psychology of Addictive Behaviors*, *31*(8), 847–861. https://doi.org/10.1037/adb0000311

Chen, J., Qian, M., Sun, C., Lin, M., & Tang, W. (2019). Clinical effectiveness of cognitive behavioural therapy on alcohol-dependent patients: an observation with the WeChat platform. *General Psychiatry*, *32*(5), e100087. https://doi.org/10.1136/gpsych-2019-100087

Drummond, G. B., & Tom, B. D. M. (2011). Statistics, probability, significance, likelihood: words mean what we define them to mean. *The Journal of Physiology*, *589*(16), 3901–3904. https://doi.org/10.1113/jphysiol.2011.215103

Everitt-Penhale, B., Kagee, A., Magidson, J. F., Joska, J., Safren, S. A., O'Cleirigh, C., Witten, J., Lee, J. S., & Andersen, L. S. (2019). 'I went back to being myself': acceptability of a culturally adapted task-shifted cognitive-behavioural therapy (CBT) treatment for depression (Ziphamandla) for South African HIV care settings. *Psychology, Health & Medicine*, *24*(6), 680–690. https://doi.org/10.1080/13548506.2019.1566624

Fenn, K., & Byrne, M. (2013). The key principles of cognitive behavioural therapy. *InnovAiT: Education and Inspiration for General Practice*, *6*(9), 579–585. https://doi.org/10.1177/1755738012471029

Fiabane, E., Scotti, L., Zambon, A., Vittadini, G., & Giorgi, I. (2019). Frequency and Predictors of Alcohol-Related Outcomes Following Alcohol Residential Rehabilitation Programs: A 12-Month Follow-Up Study. *International Journal of Environmental Research and Public Health*, *16*(5), 722. https://doi.org/10.3390/ijerph16050722

Harrison, R., Van Hout, M. C., Cochrane, M., Eckley, L., Noonan, R., Timpson, H., & Sumnall, H. (2020). Experiences of Sustainable Abstinence-Based Recovery: an Exploratory Study of Three Recovery Communities (RC) in England. *International Journal of Mental Health and Addiction*, *18*(3), 640–657. https://doi.org/10.1007/s11469-018-9967-8

Hofmann, S. G. (2021). The Future of Cognitive Behavioral Therapy. *Cognitive Therapy and Research*, *45*(3), 383–384. https://doi.org/10.1007/s10608-021-10232-6

Huang, Y., & Smedema, S. (2023). Character Strengths, Coping, and Addiction Recovery: a Mediation Analysis. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-023-01211-x

Im, P. K., Wright, N., Yang, L., Chan, K. H., Chen, Y., Guo, Y., Du, H., Yang, X., Avery, D., Wang, S., Yu, C., Lv, J., Clarke, R., Chen, J., Collins, R., Walters, R. G., Peto, R., Li, L., Chen, Z., … Zhang, X. (2023). Alcohol consumption and risks of more than 200 diseases in Chinese men. *Nature Medicine*, *29*(6), 1476–1486. https://doi.org/10.1038/s41591-023-02383-8

Ito, J. R., & Donovan, D. M. (1986). Aftercare in Alcoholism Treatment. In *Treating Addictive Behaviors* (pp. 435–456). Springer US. https://doi.org/10.1007/978-1-4613-2191-0_22

Jelalian, E., Jandasek, B., Wolff, J. C., Seaboyer, L. M., Jones, R. N., & Spirito, A. (2019). Cognitive-Behavioral Therapy Plus Healthy Lifestyle Enhancement for Depressed, Overweight/Obese Adolescents: Results of a Pilot Trial. *Journal of Clinical Child & Adolescent Psychology*, *48*(sup1), S24–S33. https://doi.org/10.1080/15374416.2016.1163705

Kabwama, S. N., Ndyanabangi, S., Mutungi, G., Wesonga, R., Bahendeka, S. K., &

Guwatudde, D. (2016). Alcohol use among adults in Uganda: findings from the countrywide non-communicable diseases risk factor cross-sectional survey. *Global Health Action*, *9*(1), 31302. https://doi.org/10.3402/gha.v9.31302

Kiburi, S. K., Kwobah, E. K., Paruk, S., & Chiliza, B. (2023). Feasibility, acceptability and preliminary efficacy of a cognitive behavior therapy text-message intervention among individuals with opioid use disorder in Kenya: a randomized feasibility trial. *BMC Digital Health*, *1*(1), 14. https://doi.org/10.1186/s44247-023-00014-3

Kim, T. K. (2015). T test as a parametric statistic. *Korean Journal of Anesthesiology*, *68*(6), 540. https://doi.org/10.4097/kjae.2015.68.6.540

Kyazze, R., Natuhamya, C., Mwebesa, E., Kiyingi, F., Musoke, M., & Tumwesigye, N. M. (2024). Structural Equation Model for a Relationship between Family Support Systems and Alcohol Addiction Recovery: Mediation Effect of Continuing Care Services. *Journal of Advanced Psychology*, *6*(1), 39–54. https://doi.org/10.47941/japsy.2188

Magill, M., Kiluk, B. D., & Ray, L. A. (2023). Efficacy of Cognitive Behavioral Therapy for Alcohol and Other Drug Use Disorders: Is a One-Size-Fits-All Approach Appropriate? *Substance Abuse and Rehabilitation*, *Volume 14*, 1–11. https://doi.org/10.2147/SAR.S362864

Martinelli, T. F., Roeg, D. P. K., Bellaert, L., Van de Mheen, D., & Nagelhout, G. E. (2023). Understanding the Process of Drug Addiction Recovery Through First-Hand Experiences: A Qualitative Study in the Netherlands Using Lifeline Interviews. *Qualitative Health Research*, *33*(10), 857–870. https://doi.org/10.1177/10497323231174161

McHugh, R. K., Hearon, B. A., & Otto, M. W. (2010). Cognitive Behavioral Therapy for Substance Use Disorders. *Psychiatric Clinics of North America*, *33*(3), 511–525. https://doi.org/10.1016/j.psc.2010.04.012

McKay, J. R. (2021). Impact of Continuing Care on Recovery From Substance Use Disorder. *Alcohol Research: Current Reviews*, *41*(1). https://doi.org/10.35946/arcr.v41.1.01

Minjie, Z., Zhijuan, X., Xinxin, S., Xinzhu, B., & Shan, Q. (2023). The effects of cognitive behavioral therapy on health-related quality of life, anxiety, depression, illness perception, and in atrial fibrillation patients: a six-month longitudinal study. *BMC Psychology*, *11*(1), 431. https://doi.org/10.1186/s40359-023-01457-z

Mishra, P., Singh, U., Pandey, C. M., Mishra, P., & Pandey, G. (2019). Application of student's t-test, analysis of variance, and covariance. *Annals of Cardiac Anaesthesia*, *22*(4), 407–411. https://doi.org/10.4103/aca.ACA_94_19

Mushi, D., Francis, J. M., Moshiro, C., Hanlon, C., & Teferra, S. (2022). Integration of Alcohol Use Disorder Interventions in General Health Care Settings in Sub-Saharan Africa: A Scoping Review. *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.822791

Nadkarni, A., Gandhi, Y., Bhatia, U., & Velleman, R. (2023). Closing the treatment gap for alcohol use disorders in low- and middle-income countries. *Cambridge Prisms: Global Mental Health*, *10*, e3. https://doi.org/10.1017/gmh.2022.57

Namasaba, M., Nabunje, S., & Baguwemu, A. A. (2022). Effectiveness of multi-modal cognitive behavioural therapy in improving mental well-being among caregivers of

children with disabilities in urban Uganda: A cluster-randomized controlled trial. *Journal of Global Health*, *12*, 04102. https://doi.org/10.7189/jogh.12.04102

Neufeld, C. B., Szupszynski, K. P. D. R., Barletta, J. B., Romero, F. A., Rutsztein, G., Airaldi, M. C., Ruiz, P., & Keegan, E. (2021). The Development of Cognitive Behavioral Therapy: Practice, Research, and Future Directions in Latin America. *International Journal of Cognitive Therapy*, *14*(1), 235–246. https://doi.org/10.1007/s41811-021-00100-2

Nutt, D., Hayes, A., Fonville, L., Zafar, R., Palmer, E. O. C., Paterson, L., & Lingford-Hughes, A. (2021). Alcohol and the Brain. *Nutrients*, *13*(11), 3938. https://doi.org/10.3390/nu13113938

Park, S. H., & Kim, D. J. (2020). Global and regional impacts of alcohol use on public health: Emphasis on alcohol policies. *Clinical and Molecular Hepatology*, *26*(4), 652–661. https://doi.org/10.3350/cmh.2020.0160

Peeraphatdit, T. (Bee), Kamath, P. S., Karpyak, V. M., Davis, B., Desai, V., Liangpunsakul, S., Sanyal, A., Chalasani, N., Shah, V. H., & Simonetto, D. A. (2020). Alcohol Rehabilitation Within 30 Days of Hospital Discharge Is Associated With Reduced Readmission, Relapse, and Death in Patients With Alcoholic Hepatitis. *Clinical Gastroenterology and Hepatology*, *18*(2), 477-485.e5. https://doi.org/10.1016/j.cgh.2019.04.048

Pettersen, G., Bjerke, T., Hoxmark, E. M., Eikeng Sterri, N. H., & Rosenvinge, J. H. (2023). From existing to living: Exploring the meaning of recovery and a sober life after a long duration of a substance use disorder. *Nordic Studies on Alcohol and Drugs*, *40*(6), 577–589. https://doi.org/10.1177/14550725231170454

Pohl, K., Moodley, P., & Dhanda, A. D. (2021). Alcohol's Impact on the Gut and Liver. *Nutrients*, *13*(9), 3170. https://doi.org/10.3390/nu13093170

Roerecke, M. (2021). Alcohol's Impact on the Cardiovascular System. *Nutrients*, *13*(10), 3419. https://doi.org/10.3390/nu13103419

Rumgay, H., Murphy, N., Ferrari, P., & Soerjomataram, I. (2021). Alcohol and Cancer: Epidemiology and Biological Mechanisms. *Nutrients*, *13*(9), 3173. https://doi.org/10.3390/nu13093173

Sohi, I., Franklin, A., Chrystoja, B., Wettlaufer, A., Rehm, J., & Shield, K. (2021). The Global Impact of Alcohol Consumption on Premature Mortality and Health in 2016. *Nutrients*, *13*(9), 3145. https://doi.org/10.3390/nu13093145

Srivastava, K., Prakash, J., Bhat, P., Chatterjee, K., Chaudhury, S., & Chauhan, V. (2022). Cognitive behavior therapy as an adjuvant in management of alcohol dependence syndrome. *Industrial Psychiatry Journal*, *31*(2), 255. https://doi.org/10.4103/ipj.ipj_267_21

Sundström, C., Kraepelien, M., Eék, N., Fahlke, C., Kaldo, V., & Berman, A. H. (2017). High-intensity therapist-guided internet-based cognitive behavior therapy for alcohol use disorder: a pilot study. *BMC Psychiatry*, *17*(1), 197. https://doi.org/10.1186/s12888-017-1355-6

Swahn, M. H., Palmier, J. B., & Kasirye, R. (2013). Alcohol Exposures, Alcohol Marketing, and Their Associations with Problem Drinking and Drunkenness among Youth Living in

the Slums of Kampala, Uganda. *ISRN Public Health*, *2013*, 1–9. https://doi.org/10.1155/2013/948675

Tolin, D. F. (2010). Is cognitive–behavioral therapy more effective than other therapies?A meta-analytic review. *Clinical Psychology Review*, *30*(6), 710–720. https://doi.org/10.1016/j.cpr.2010.05.003

Varghese, J., & Dakhode, S. (2022). Effects of Alcohol Consumption on Various Systems of the Human Body: A Systematic Review. *Cureus*. https://doi.org/10.7759/cureus.30057

Verhey, I. J., Ryan, G. K., Scherer, N., & Magidson, J. F. (2020). Implementation outcomes of cognitive behavioural therapy delivered by non-specialists for common mental disorders and substance-use disorders in low- and middle-income countries: a systematic review. *International Journal of Mental Health Systems*, *14*(1), 40. https://doi.org/10.1186/s13033-020-00372-9

WHO. (2019). *World Health Organization Global Status Report on Alcohol and Health 2018*.

WHO. (2023). *WHO's SAFER Initiative is a timely intervention to reduce alcohol-related harm in Uganda*.