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The Mediating Effect of Recovery Factors on Alcohol Addiction Recovery Interventions and Perceived Sobriety in the selected Hospital and Rehabilitation Centre: A cross-sectional study.

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Abstract

Background:

Mediating recovery factors provide a very clear approach to establishing relationships between variables. The method used was highly recommended as a flexible and statistically powerful approach to the establishment of treatment facilities to promote recovery from alcohol abuse and enhance sobriety.

Methods:

A cross-sectional design was used to conduct the study; the researcher used a convergent mixed method involving a sequential explanatory design. Collection and analysis of quantitative data were done, as well as analysis of qualitative data. Priority given to quantitative data. A sequential exploratory design was used, where qualitative data collection and analysis were followed by quantitative data collection and analysis. Priority given to qualitative study. Findings were integrated during the interpretation phase. Concurrent triangulation design where only one data collection phase was used.

Results:

Mediating recovery factors results in alcohol addiction recovery interventions and perceived sobriety revealed a weak positive relationship between the level of alcohol addiction recovery interventions and perceived sobriety ($r = .131$, $p = 0.112$). This relationship is statistically significant with a p-value of 0.112. Therefore, the stated null hypothesis was rejected, meaning that there is an influence of alcohol greater than a 0.05 level of significance on perceived sobriety. Results showed that there is a positive but significant relationship between perceived sobriety and alcohol addiction recovery interventions ($r = 0.169$, $p = 0.001$). The findings suggest that the application of alcohol addiction recovery interventions results in perceived sobriety. Hypothesis results showed that recovery factors have a statistically significant effect on alcohol addiction recovery interventions and perceived sobriety.

Conclusion:

The mediating effect has a significant relationship between alcohol addiction recovery interventions and perceived sobriety.

Recommendation:

Ministry of Health and District Health Officers, through the Mental Health hospital in charge, consider the adoption of the ISCAR model to be used in treatment facilities.

Keywords: *Recovery factors, alcohol, addiction, recovery interventions, perceived sobriety, Hospital, Rehabilitation, and Centre.*
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Introduction

Uganda has scarce alcohol treatment facilities, with 18% alcohol disorders entering treatment facilities, and between 12 to 35% of patients recover from alcohol addiction with little or no specialist intervention, which results in relapses. The prevalence of relapse of alcohol use disorder at Butabika Hospital was at 63%; a relapse rate of 66.6% with alcohol use disorder in a three-year period after treatment (Kamal P, Ravi S, Dinesh D, Sharma, 2017) while a comparable study from Serenity Rehabilitation Centre showed that, relapse occurred among 37% patients sampled by the three-month post-discharge follow-up, which was relatively low compared to other studies that have reported rates from 50% to 75% Norwegian Pasareanu et al., (2016), revealed that, relapse occurred among 37% patients sampled by the three-month post-discharge follow-up, which was relatively low compared to other studies that have reported rates from 50% to 75% (Darke et al., 2005; Gil-Rivas,

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Prause, & Grella, 2009; McKetin et al., 2018; Suter et al., 2011). As a result, the Treatment Episode Data Set (2013) recommended that Uganda have serious policies on alcohol use to reduce the level of alcohol abuse in the country. Kalema and Vander, Plasschen, (2015) asserted that, promotion of recovery from alcohol abuse required handing people the tools and strategies to develop recovery capital to reduce perceived sobriety as National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2014) noted that, 1.5 million adults struggling with relapse after having received treatment at a specialized alcohol use disorder facility due to inadequate human resource in psychology department, majority of the patients are discharged without receiving counselling. The findings of the study revealed limitations in the implementation of alcohol addiction recovery interventions used in the treatment facilities in the study area due to inadequate human resources, such as the counseling psychology department. As a result, most addicts depend on pharmacological interventions, resulting in high relapse rates. Therefore, the study sought to examine the influence of alcohol addiction recovery interventions and recovery factors on perceived sobriety in selected hospitals and the Rehabilitation Centre in Kampala and Wakiso districts, Uganda.

Objective

To examine the mediating effect of recovery factors on alcohol addiction recovery interventions and perceived sobriety in the selected Hospital and Rehabilitation Centre, Kampala and Wakiso districts, Uganda.

Methodology.

Study design

A cross-sectional design was used, and a mixed method approach with a sequential explanatory and sequential exploratory design, where a combination of quantitative and qualitative data collection and analysis was used to integrate Findings during the interpretation phase. The researcher used a concurrent triangulation design where only one data collection phase was used; during data collection, analyses were conducted separately.

Setting (Unit of analysis)

The unit of analysis considered participants of the following categories: Psychological counselors, addiction counselors, psychiatric nurses, occupational therapists, and alcohol addicts. The unit of observation and documentary review on which the data was collected focused on the behavior and physical symptoms of alcohol addicts such as broken capillaries on the nose and face (red splotches or obvious small red veins), bloodshot eyes, jaundice (yellow discoloration of the eyes and skin as a result of alcohol-related liver damage), reddening of palms of the hands, and frequent smell of alcohol on the breath. While on the behavioral symptoms the researcher focused on symptoms such as being unable to limit the amount of alcohol you drink, wanting to cut down on how much you drink or making unsuccessful attempts to do so, spending a lot of time drinking, getting alcohol or recovering from alcohol use, feeling a strong craving or urge to drink alcohol, failing to fulfill major obligations at work, school or home due to repeated alcohol use. The outcome of the study focuses only on alcohol recovery addicts in rehabilitation facilities as a benefit to their treatment. In conformity, (Yurdusev, 1993), revealed that the unit of analysis was what or who was being studied. In social sciences, the majority of the units of analysis consider individual participants, groups, organizations, and societies.

Participants

Simple random sampling and purposive sampling were used to get the respondents. 297 questionnaires were given out to respondents, 50 questionnaires were given to respondents in Serenity centre, while 247 questionnaires were administered to respondents in Butabika National Referral Hospital. 47 questionnaires were fully filled out of 50, and 03 questionnaires were not fully filled out from Serenity rehabilitation centre, while 238 questionnaires were fully filled, and 06 questionnaires were not fully filled, and 03 questionnaires were not returned from Butabika National Referral Hospital. 24 participants were randomly selected among alcohol addicts to participate in the focus group discussion, 12 from Serenity and 12 from Butabika, making two groups of focused group discussion. 41 service providers were purposively selected for interview since they were receiving recovery treatment from the facilities.

Bias – (study limitations)

Naqvi and Bechara, (2009) affirmed that, addiction was a complex phenomenon that requires interaction of factors that contributes to individuals seeking out, several scholars used combination of elements, models and theories to address the challenge but there seems to be very little impact since individuals using alcohol develop problems, great interest persists in understanding what the role different factors play in leading a person into addiction including psychological makeup such as self-esteem, impulsivity, depression, environmental situation and biological response to drugs for example, the effect drugs exert on an individual and biological status of the person taking drugs, the presence of the inherited characteristics which affect the persons response to drug.

Study size

Statistical methods (sample size determination formula)

The research focused mainly on alcohol addicts and service providers, Butabika National Referral Hospital in Kampala, and Serenity rehabilitation centre in Wakiso district. The sample size was determined by Dillman 2007), Formula of determining sample size as shown below.

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$$S = \frac{NP\,(P)\,(1-P)}{NP-1(B/C) + (P)\,(1-P)}$$

S= Sample
NP = Number of Population
P = Population Proposition Magnitude, yielding the maximum Possible Sample Size = 50% =0.5
B= Sampling error = 5% = 0.05
C=Level of Confidence = 1.960

$$S = \frac{2800\,(0.5)\,(1-0.5)}{2800\,-1(0.005)^2 + (0.5)\,(0.5)}$$

$$S = \frac{1.960}{\frac{2800x0.25}{S=2799x0.0006507705+0.25}}$$

$$S = \frac{700}{2799x0.0006507705+0.25}$$

$$S = \frac{700}{2.0715066295}$$

S=337.9
S=338

Table 1: Population size, sample size, and method of data collection

Category of respondents	Population size	Sample size	Sampling strategy	Strategy Methods of data collection and instruments
Addiction counselors	20	20 x 338 = 2 2800	Purposive	Interviews (use of Interview guide), documentary review (use of documentary checklist), and electronic data recording (use of phone for recording the interviews)
Psychological Counselors	125	125 x 338= 15 2800	Purposive	Interviews (Interview guide), documentary review (documentary checklist), and electronic data recording (use of telephone)
Occupational Therapists	30	30 x 338= 4 2800	Purposive	Interviews (Interview guide), documentary review (documentary checklist), and electronic data recording (use of telephone)
Psychiatric Nurses	168	168 x 338= 20 2800	Purposive	Interviews (Interview guide), documentary review (documentary checklist), and electronic data recording (use of telephone)
Alcohol addicts	2,457	2,457x 338=297 2800	Simple random sampling	Questionnaires (questionnaire guide), focused group discussion (FGD guide), Observations (Observational checklist), and Documentary review (documentary checklist)
Total	**2,800**	**338**		

Source: Primary Data (2022)

Data Analysis

Quantitative Data Analysis

Quantitative data analysis involved the use of descriptive and inferential statistics, such as mean and standard deviation, which helped the researcher to organize data in a meaningful form and describe the data such that quantitative statements could be made. The study used Pearson's product-moment correlation coefficient to find out whether a relationship existed between variables and determined its magnitude and direction. Multiple regression analysis was used to ascertain how the dependent and mediating effects could be predicted on the independent variables because the main study constructs were disaggregated into their constituent sub-constructs and analyzed separately.

Hypothesis testing

The results of the study revealed a weak positive relationship between the level of alcohol addiction recovery interventions and the level of perceived sobriety (r = .131, p = 0.112). This relationship is statistically significant since a p-value of 0.112 is greater than a 0.05 level of significance. This result shows a positive, but significant, relationship between perceived sobriety and alcohol addiction recovery interventions (r = 0.169, p = 0.001). The findings suggest that those who apply alcohol addiction recovery interventions are likely to exhibit perceived sobriety. The likelihood of exhibiting perceived sobriety is explained by the positive linear relationship (r = 0.169). The null hypothesis was tested against the directional (alternative), and the result showed that H_4: There is a statistically significant effect of recovery factors on alcohol addiction recovery interventions on perceived sobriety in Butabika National Referral Hospital and Serenity Rehabilitation Centre in central Uganda.

Qualitative Data Analysis

Qualitative data analysis involved content analysis. Data was coded and grouped according to similar ideas in the data

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grouping, as well as similar information together in categories relating different ideas to the content. Data was organized according to the findings and ideas focusing on the concepts using content analysis. An interview was used to transcribe verbatim data to support the questionnaire results. While Quantitative data analysis involved the use of descriptive and inferential statistics, such as mean and standard deviation, which helped the researcher to organize data in a meaningful form and describe the data such that quantitative statements could be made. The study used Pearson's product-moment correlation coefficient to find out whether a relationship existed between variables and determined its magnitude and direction. Multiple regression analysis was used to ascertain how the dependent and mediating effects could be predicted on the independent variables because the main study constructs were disaggregated into their constituent sub-constructs and analyzed separately.

Research Ethical Considerations

The researcher followed the established general principles regarding informed consent, confidentiality, and anonymity. Reading people's case files was a very sensitive issue. Authorities of the selected treatment facilities were informed about the purpose of keeping the secrets of the respondents. To protect the respondents' names, they were not required to write them on the questionnaire. Following principles of autonomy, the researcher adopted a method to provide adequate information about the research study to the respondents in the consent form given to them, in clear and understandable terms, to enhance their informed consent. An introduction letter was obtained from the School of Postgraduate Studies and Research of Nkumba University, introducing the researcher to the Clarke International University Research Ethics Committee for approval with UG-REC-015, CIUREC/0216 of the research proposal, and got a letter of approval. Protocols were submitted to the National Council for Science and Technology with UNCST-SSI026ES for further approval in order to get the final letter of approval for going to the field to carry out the study.

Data Collection

An interview guide and focused group discussion tools were used for collecting qualitative data. Responses were recorded during the interview process for future reference and in-depth analysis. An interview guide technique was used to enable data collection. The participants were grouped into two groups of 6 participants from Serenity and Butabika, respectively, this was to give every participant a chance to share their views about the questions of discussion. The identity of the respondents was controlled because the researcher consented to the ethical requirement of keeping confidentiality.

Data was collected using questionnaires survey and interview guide from the large number of respondents 338 respondents participated in the study within the shortest period of time as noted by Tuckman, (1994), that, the result of the questionnaire can quickly be quantified either by use of software package such as SPSS or accordingly, questionnaires were given out randomly to the sampled respondents to answer with help of the principle investigator and research assistant. Quantitative data were analyzed using Pearson's product-moment correlation coefficient, and hypotheses were tested. Qualitative data were analyzed using content analysis.

RESULTS OF THE FINDINGS.

Introduction

This chapter presents the demographic characteristics of the respondents, findings of the objective, which was "to evaluate the recovery factors of alcohol addiction recovery intervention on perceived sobriety in Butabika National Referral Hospital, Kampala, and Serenity Rehabilitation Centre, Wakiso District, Uganda". It presents the results of the hypothesis testing, inferential statistics using Pearson's product-moment correlation coefficient on alcohol addiction recovery intervention and perceived sobriety, as well as the descriptive statistics results with presentation, interpretation of alcohol addiction recovery intervention and perceived sobriety, and Multiple Regression Results for the effects of mediating effects on alcohol addiction recovery interventions and perceived sobriety.

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Table 2: Demographic Characteristics of Young Adults receiving therapies at Butabika National Referral Hospital and Serenity Rehabilitation Centre in Kampala and Wakiso districts, Uganda

		Frequency (N = 285)	Percentage (%)
Age in Years			
	20—25	55	19.3
	26—30	71	24.9
	31—35	95	33.3
	36—40	64	22.5
Gender			
	Male	213	74.7
	Female	72	25.3
Education Level			
	None	33	11.6
	Primary 1—7	44	15.4
	Senior 1—4	57	20.0
	Senior 5—6	63	22.1
	University or any institution	88	30.9
Marital Status			
	Married	89	31.2
	Single mother/father	44	15.4
	Separated/divorced	53	18.6
	Single	99	34.7
Occupation			
	Civil Servant	48	16.8
	Farmer	86	30.2
	Self –employed	97	34.0
	None	54	18.9

Source: Primary Source Data (2022)

From the above table 2, the study findings show that most of the respondents,95(33.3%) were in the age range of 31-35 years; were in the age range of 26-30 years; 71(24.9%) were in the age range of 36-40 years 64(22.5%) and aged 20-25 years were 55(19.3%). This shows that the majority of the respondents were mature enough to answer the questions correctly and hence had the basic idea of alcohol use and how one can get into addiction when subjected to excessive use.

In relation to gender, the majority of the respondents, 213(74.7%), were male, whereas 72(25.3%) were female, indicating that the number of males who participated in the study is greater than that of the females. Concerning the education level, majority of the respondents, 88 (30.9%) were university or at an institution level, whereas were senior 5-6 education level 63(22.1); while 57(20.0%), were senior 1-4 level; whereas, 44(15.4%) were of primary 1-7 level and those with non -educational level were 33(11.6%), indicating that most of the respondents were with high educational level, meaning that those who participated in the study were university or institution professionals in education. In relation to the marital status, most of the respondents, 89(31.2%), were married, while 99(34.7%) were single, and 53(18.6%) were separated/divorced, and the lowest number of respondents, 44(15.4%), were single mothers/fathers. This means that most of the respondents who participated in the study were married people, followed by single people. About the occupation, most of the respondents, 97(34.0%), were self-employed, whereas 86(30.2%) of the respondents were farmers, and 54(18.9%) of the respondents had no occupation, and 48(16.8%) were civil servants who participated in the study. This means that the majority of the participants in the study were self-employed, followed by farmers.

Demographic Characteristics of Age

The demographic age group of the study was largely determined by the matrix of social relationships, where influences of different peers were involved at

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different stages, circumstances, intra- and interpersonal factors in the use of alcohol. Denise Kande (1986) noted that individuals of the same age group are seriously engaged in excessive use of alcohol, leading to cognitive distortion. This eventually requires psychological intervention to address the challenge where the healthy thought patterns and beliefs of the addicts are cut down by the use of alcohol. Zuckerman (1975) explored the relationship between an individual's need for sensory stimulation and behaviours among alcohol addicts. The study findings revealed that individuals who sought several therapies were able to establish new experiences to reduce boredom, facilitate disinhibition, and offer adventure. The most important demographic correlates with perceived sobriety were age and sex at the age of 30, and male generally scores higher than females on perceived sobriety. However, to believe that recovery intervention was effective in providing abstinence, several preventive measures were taken, such as socio-cultural, pharmacotherapy, and psychosocial interventions, which were provided coupled with the recovery factors as presented in the earlier fourth objective.

Age is significantly connected to this study, and it is a big factor in influencing high prevalence due to peer influence. The study finding shows that majority of the respondents who were admitted for rehabilitation due to alcohol abuse were between the age group of 31-35 with 33.3%, (95) followed by the age group 26-30 with 24.9% (71) whereas those within the age range of 36-40 with 22.5% (64) as the minority lies within 20-25 with 19.3% (55) age bracket were admitted for rehabilitation due to drinking alcohol. This could be because Uganda does not have a strict regulatory body to control young people from misusing alcohol. However, excessive use of alcohol remains a global challenge. National Survey on Drug Use and Health (NSDUH, 2015) revealed that 33.1% of individuals aged 15 years old or older had at least 1 drink in their lives, and about 7.7 million people aged 12 – 20 abuse alcohol, and 76.5% has health related complications. 25-34-year-olds had liver cirrhosis, while 35-44 years that is 70.0% cases of deaths. Among 1,825 individuals aged between 18 and 24 die of alcohol related unintentional injuries, including motor-vehicle crashes. This means that across the globe, alcohol is being abused regardless of the age of the abusers, which poses a very serious challenge to the present generation. WHO (2010) confirmed that alcohol abuse was the 5th risk factor globally, for premature death and disabilities among the age group 15-49 years of age, and in the age group of 20-39 (25%) deaths due to alcohol related issues. The study is looking forward to supporting the interventions used in the recovery centres to improve the quality of services offered in the treatment facilities.

Demographic characteristic on Gender

The study found significant gender differences with respect to heavy drinking problems in the treatment facilities, where males were 74.7% (213) and female with 25.3% (72). NSDUH (2015) confirmed that 49,695 men suffer from liver-related disease, while 49.5% death due to alcohol-related problems, while 28,834 women suffer from liver disease, and 43.5% death due to alcohol related problems. WHO (2012) report revealed that about 3.3 million (5.9%) deaths globally, whereby 7.6% men and 4.0% women suffer due to alcohol related problems. Whitford et al. (2013) affirmed that, in Uganda, men are estimated to have the highest prevalence of alcohol use in sub-Saharan Africa, with 25.6 litres of pure alcohol. The study findings demonstrated that males were more problematic in drinking alcohol than women. This could be related to the cultural perspective to avoid stigma, since cultural norms do not allow women to drink openly, nor does culture allow women to drink to addiction levels, which is a health problem. Globally, perceived sobriety is a problem for the male figure, and culturally, men were allowed to drink alcohol, unlike women, which resulted in variation in terms of drinking patterns and drinking problems.

The study area

The study was specifically conducted in Butabika National Referral Hospital in Kampala district and Serenity Rehabilitation Centre in Wakiso district, Uganda. These study areas treat drug addicts and alcohol or multiple users, as well as other mental health conditions. Butabika is located in Nakawa division in Kampala district; it is the only National Referral Mental Health Hospital in Uganda, which accommodates thousands of inpatients and outpatients with mental health challenges and patients of substance use disorder.

Butabika National Referral Hospital is located in Butabika, a neighborhood within Kampala, about 12 km east of Uganda's capital and largest city. It is the mental health national referral hospital for the entire country's estimated population of 36 million in the 2014 census. It lies in the southeastern part of the city, in Nakawa Division, adjacent to the northern shores of Lake Victoria, Africa's largest fresh-water lake. Its location is approximately 10.5 kilometres (6.5mi), by road, east of Kampala's central business district. The hospital is about 12.5 Kilometres (8mi) southeast of Mulago National Referral Hospital. The coordinates of Butabika Hospital are0°18'57.0"N, 32°39'33.0"E (latitude: 0.315845 and longitude: 32.659160). Butabika has a bed capacity of about 550, though the number of patients often ranges between 859 and 1000.

The hospital also handles a busy outpatient department with contact of about 350 clients per day in both general and mental healthcare areas. The hospital serves as the psychiatric teaching hospital for Makerere University College of Health Sciences for both undergraduate and postgraduate training for the degree of Bachelor of Medicine and Bachelor of Surgery (MBChB), Master of Medicine in Psychiatry (MMed), and Doctor of Philosophy (PhD) in

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Psychiatry. Butabika Hospital was established in 1955, and currently is the only National Referral Mental Health Institution in the country. The hospital provides general and specialized mental health treatment for mental health patients and is a teaching hospital for a broad range of mental health specialists, from nursing to postgraduate students. It provides primary health care services to the people from the surrounding area as well as supports other hospitals within the referral system, while providing technical advice to the health service commission and to policy-making bodies. The hospital is also an important platform for research into mental health trends in Uganda and approaches to tackling the problem.

Butabika National Referral Hospital was composed of 5 units, such as mental health, psychiatric social work services, occupational therapy, psychology unit, and private services; all these are to bring together physicians, nurses, psychologists, and other care providers across the hospital to ensure that patients receive comprehensive and personalized care. The psychology unit was a department specifically meant for alcohol and drug use (ADU), which has a bed capacity of about 100, yet it was not enough, as a result, addiction patients are accommodated in other wards like Kirinya, Bina, Kireka, the female convalescent ward, among others, while other patients who can afford to pay get admitted in the private wing.

On the other hand, Serenity rehabilitation centre was one of the commonly known private rehabilitation centres that accommodates patients of substance use disorders. It is located in Busiro West Namulanda division. Serenity Rehabilitation Centre employs a holistic approach, incorporating medical detoxification, individual counselling, and family therapy. Vocational training and community reintegration programs. The diversity of interventions reflects the multifaceted nature of addiction recovery, aiming to address the complex needs of patients. In terms of location, Serenity Centre is found in central Uganda in Wakiso district, Kajjansi Town Council, about 4 km north. Serenity Centre is located near Bwebajja, Sekiwunga, and Katwe – Kabulamuliro, off Entebbe Road, neighboring the churches of St Padre Pio Church, St Padre Pio Seminary, Friary, and Shrine- Franciscan Capuchin Friars. It is found at plot 184, Wavamuno Road, Munyonyo. The latitude of Serenity centre is 0.17696, and the longitude is 32.53595 with the GPS coordinates of 00° 10′ 37.05″ N and 32° 32′ 09.41″ E. Open location Code 6GGJ5G8P+CQ, open-Street-Map ID, node 546389507, open-street-Map Feature, tourism=information. It is about 220 metres northeast of Palm Valley Golf and Country Club, about 100 metres south. Serenity Centre was established in the year 2000 by a Jesuit priest in collaboration with the Catholic Church in Uganda, after realizing that rehabilitation services for drug addicts were lacking in Uganda. It has a residential program where clients are admitted for 90 days until they are detoxified. In the process, the addicts are offered therapy and counseling, following an international program of Alcoholics Anonymous (AA), life skills, and spiritual empowerment.

The study considered the period from 2017 to 2021 when the problem under investigation was at its peak. However, due to an unavoidable circumstance, like financial challenges since the researcher was self-sponsored, tuition became a challenge, which affected the expected time of completion, causing the researcher to delay completing in time and graduate in 2024. According to the documentary review results, the study revealed that, in 2017, Serenity rehabilitation centre had 83.8% of admissions, while Butabika hospital had 92.3%, and in 2021 Serenity had 83.8% and Butabika had 87.3% admissions. Perceived sobriety is one of the challenges recovering addicts experience due to premature discharge from the previous admission, resulting in relapse, leading to an increase in the rate of admission in the treatment facilities.

Table *3*: Breakdown of participants' eligibility for the study and those eligible but did not participate in the study in Butabika National Referral Hospital and Serenity Rehabilitation Centre. Response rate to the study

Population and Responses of Sample Selection for Questionnaires and Interviews	Total
Population of addicts in central Uganda	5,000
Target population of addicts and service providers in Butabika National Referral Hospital and Serenity Rehabilitation Centre	2,800
Number of addicts in Butabika Hospital and Serenity Rehabilitation Centre	2,457
Target population of service providers in Butabika National Referral Hospital and Serenity Rehabilitation Centre	343
General sample size for the study of alcohol addicts and service providers in Butabika National Referral Hospital and Serenity Rehabilitation Centre	338
Sample Size of eligible alcohol addicts in Butabika National Referral Hospital to participate in the study	247
Number of questionnaires fully filled by eligible alcohol addicts in Butabika National Referral Hospital	235
Number of questionnaires not fully filled by eligible alcohol addicts in Butabika National Referral Hospital	09
Number of questionnaires not returned from Butabika National Referral Hospital by eligible participants	03
General sample size for the study of alcohol addicts and service providers in Serenity Rehabilitation Centre	65
Sample Size of eligible alcohol addicts in Serenity Rehabilitation Centre to participate in the study	50
Number of questionnaires fully filled by eligible alcohol addicts in Serenity Rehabilitation Centre	47

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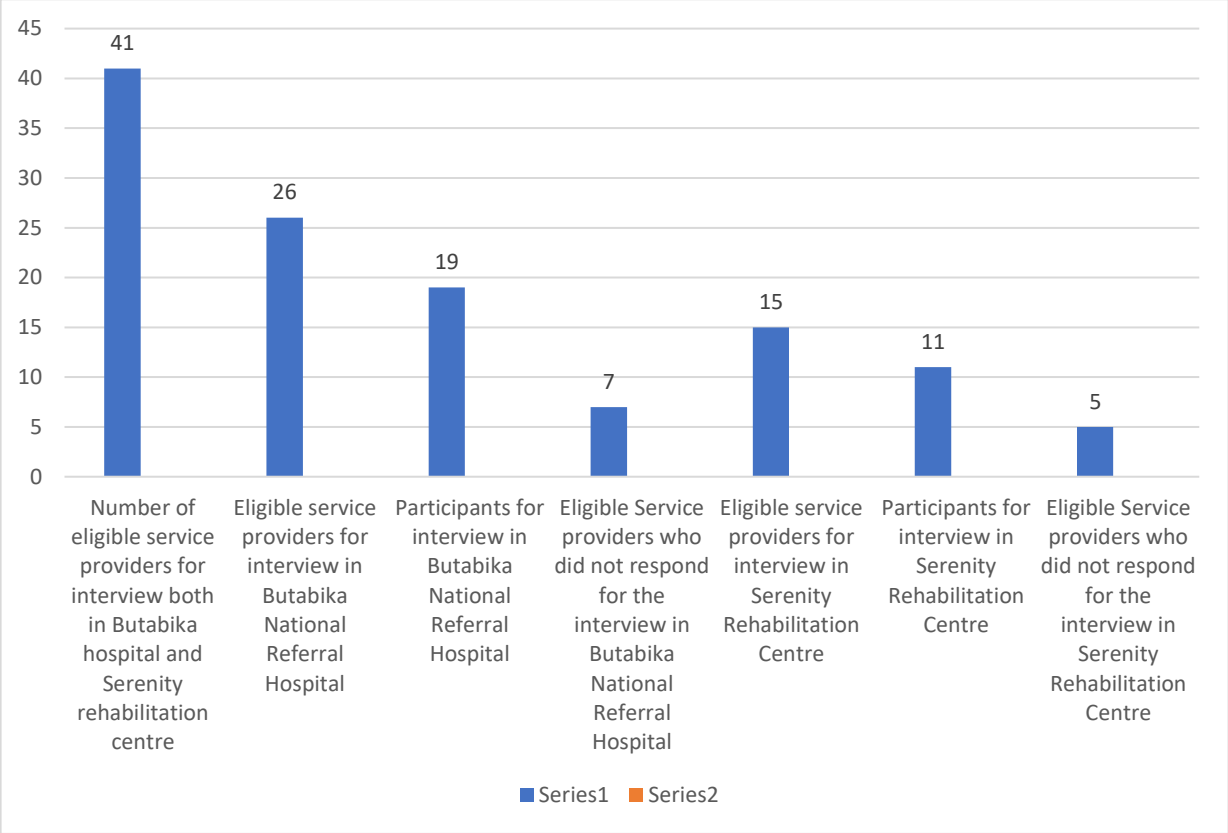
Number of questionnaires not fully filled by eligible alcohol addicts in Serenity Rehabilitation Centre	03
Number of questionnaires not returned from Serenity Rehabilitation Centre by eligible participants	0
Population and Responses of Sample selection for interviews	
Number of eligible service providers for interview, both in Butabika hospital and Serenity rehabilitation centre	41
Eligible service providers for interview in Butabika National Referral Hospital	26
Participants for the interview in Butabika National Referral Hospital	19
Eligible Service providers who did not respond to the interview at Butabika National Referral Hospital	7
Eligible service providers for interview in Serenity Rehabilitation Centre	15
Participants for the interview in Serenity Rehabilitation Centre	11
Eligible Service providers who did not respond to the interview at the Serenity Rehabilitation Centre	5

Source: Primary Data (2022)

Table 3 above shows the detailed breakdown of the population of the respondents in the selected treatment facilities.

Graph 1: Response rate for interviews from Butabika and Serenity



Breakdown of participants' eligibility for the study and those eligible but did not participate in the study during the interview in Butabika National Referral Hospital and Serenity Rehabilitation Centre. Response rate to the study.

Source: Primary Source Data (2022)

Concerning the participation in the interviews, the study had a sample size of 41 respondents eligible for the interview 26 from Butabika national referral hospital, and 15 from Serenity rehabilitation centre, however, not all participated in the study when the responses reached saturation point so 19 participants were interviewed from Butabika national referral hospital leaving out 07 participants consisting of the different categories identified to participate in the study that is addiction counselors, psychological counselors, occupational Therapists and psychiatric nurses while Serenity rehabilitation centre had 11 out of 15 responses from similar category as potentially identified respondents leaving 05 after reaching point of saturation.

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Table 4: Descriptive Statistics Results of Hope and Sense of Belonging

Hope and sense of belonging	Mean	Std. Deviation	Interpretation
I lost hope in myself as my family rejected me as a result of my drinking behaviour	3.15	1.37	Average
I feel it is not possible for me to recover from alcohol use	2.73	1.47	Average
I feel my life has lost meaning	2.91	1.46	Average
I have a feeling of no purpose within me	2.89	1.48	Average
I just feel no motivation in any current activity around me	2.95	1.33	Average
I feel trapped and stuck, like there is no way out when I stop drinking alcohol, hope, and a sense of belonging	3.84	1.19	High
Pooled Mean & Standard Deviation	**3.08**	**1.38**	

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low

Source: Primary Data (2022)

From the descriptive statistics in Table: 4. indicate an aggregate (Mean = 3.08, SD = 1.38) which implies that, there was average level of hope and sense of belonging while the specific results show high score level of trapped and stuck, just like there is no way to stop drinking alcohol with (Mean =3.84, SD=1.19), meaning that some of the alcohol addicts lose hope of recovery given their status in life they feel wasted with no hope much as they are in the recovery facility hence resulting to several relapses as a result of failure of not having sense of belonging. However, the majority of the respondents scored average as shown in the above table, meaning that they have hope and therefore, recovery was possible, hence leading to the reduction of perceived sobriety.

The following were the results from interviews focused group discussions from Butabika National Referral Hospital and Serenity rehabilitation centre on the effects of the recovery factors on perceived sobriety. Regarding hope and sense of belonging, 18/30 of the respondents during the focus group discussion said:

"Hope and a sense of belonging help us make social networks and make one feel confident of himself/herself. This can protect the individual from alcohol abuse through social learning and influences. It improves social responsiveness, about the present disgracing behavior, one feels he is answerable somewhere, attend alcoholic anonymous groups, and is involved in daily activities if possible, according to one's ability of performance. It makes an individual become responsible and self-reliant, and one can even become an advocate for recovery by getting involved in a sensitization program and visiting fellow addicts in families or connecting with online empowerment programs to increase recovery and promote sobriety." **(K.I.I, 2022).**

During the focus group discussion, participants echoed that Hope and a sense of belonging play a very significant role in the recovery process of an addict:

"*Once you lose hope, you become hopeless and then dead, we are here because of hope and we want to change / transformation and better persons, this is left at an individual level just like "bread which is in the oven ready to be removed but not removed and it was left to burn and therefore, it is useless". develop positive attitude, it helps in building and gaining self-confidence".* ***(K.I.I, 2022).***

Another respondent shared a personal experience about hope and a sense of belonging:

"I feel loved and hopeful, helps you avoid negative deeds, Helps one from relapsing, it makes us feel that they are not alone in the world, no condition is permanent you still have more to achieve, you feel that what an alcohol addict can overcome, can also give knowledge to others, it brings out solidarity where they help one another in case of anything, it bridges the gap and makes a person open up, hence making one open up, one was confident to share life experiences, it takes away the fear of being judged negatively, it gives strength to fight the greatest fears". ***(K.I.I, 2022).***

This implies that hope and a sense of belonging encourage patients to identify with each other in the treatment facility and develop a common goal of recovery and staying sober even after discharge in order to support the majority in the community who did not have the chance of being brought for treatment in the rehabilitation. Able to support each other positively in the rehabilitation facility and build strong relationships to avoid leading them into drinking, be positive with oneself, and have hope for life, that change is possible. Encourage them to get friends, peers, and the company of those who do not drink alcohol. This helps them connect and share experiences that help them to develop a positive self-attitude and become positive towards life.

During the focus group discussion, 23/30 respondents said that:

"Hope and sense of belonging help us get involved in a social support network, which is important in the recovery process because it makes the person feel important in the family/community, hence promoting sustainable recovery. A good social network encourages and supports, motivates us to look at life positively, believing that sobriety can be lived. It strengthens an individual's social support with the family, which is a very important factor in recovery and living sober without using alcohol. Patients who have hope as a priority

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in their recovery work toward maintaining sobriety, as well as work to keep their promise, unlike those who do not have hope in themselves and do not believe that they can live sober after getting out of the recovery facility. Those who hope only need capital to start a life positive with follow-ups so that they can either be helped to get back to school, or need to start a business after discharge" **(K.I.I, 2022).**

However, the church choir was one of the strong, influential network support systems that strongly influenced the recovery of the patients positively by giving them hope for a better future with the influence of the word of God, which encourages positive living, and more so, when they are given leadership positions, since the activities keep them busy. The individual is also reconnected with the concept of supernatural beings, which can then provide holistic healing. However, negative social support influences them to relapse as young people; they want to be with their peers, and when they feel left alone, they look for companions. That is why family therapies are programmed because if they are not positively supported, they can easily be influenced by loneliness and negative peer groups. Responses on a positive sense of self were also sought. However, there was a need for an after-care program. Table 3, below, shows the result for the positive sense of self.

Table 5: Descriptive Statistics Result of Positive Sense of Self

Positive sense of self	Mean	Std. Deviation	Interpretation
The therapy providers always supported my sense of self-efficacy	3.34	1.26	Average
The therapists respond to me with humor, and I feel content that I am on track to recovery	3.58	1.15	High
The therapy providers are always thankful that I am responding to perceived sobriety	3.68	1.06	High
The counselors find my feelings and thoughts acceptable to them and acknowledge my strengths with calmness	3.58	1.07	High
I value abstinence from alcohol just as the rest of the members in the Alcoholics Anonymous Group I belong to	3.44	1.16	High
When I see others recover from perceived sobriety, it makes me feel that recovery is possible, not just for others but also for myself	3.55	1.17	High
Pooled Mean & Standard Deviation	**3.53**	**1.14**	

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low

Source: Primary data (2022)

The descriptive statistics Table 5. above indicates an aggregate (Mean = 3.53, SD = 1.14) which implies that, there was average level of positive sense of self, while the specific results show high score level of therapy providers always thankful in responding against perceived sobriety with (Mean =3.84, SD=1.19), this implies that, therapist support to the recovering patients are very significant in the rehabilitation facility though may not be taken seriously by some patients; this was reflected by the average response of therapy providers always supported sense of self-efficacy was scored average but the general result indicates high level of score as indicated in the above table.

On a positive sense of self, during the focus group discussion, 18/30 respondents said that:

"Positive sense of self helps the individuals to learn positive social network support, which in recovery is a way that one is exposed to supportive peers that one can journey with; through the recovery process, for example, those who attend group therapy like Alcoholics Anonymous (AA) meetings. It provides emotional support, such as a platform to express their challenges. It helps them improve the livelihood of long-term abstainers from alcohol use. They give each other emotional and psychological support when one is challenged emotionally, thus leading a positive lifestyle. It helps them adopt the coping mechanism and learn new ideas and skills through Television, radio, internet programs, and are able to understand the dangers of continuous use of alcohol. It enables them to know the effects of alcohol in the body, including damage to the liver and other internal organs" **(K.I.I, 2022).**

In the same vein, Focused Group Discussions on a positive sense of self were done. A positive sense of self helps one keep sober, be able to make productive decisions, become independent, other than depending on others, plan for himself, gain a sense of respect, and keep sober, providing hope for the alcohol addict. It brings a sense of unity and togetherness as each member of the family feels at home with each other, members gain confidence in each other, it reduces the stress of financial burden, and spiritually, members are connected with each other and with God, and it also provides a sense of belonging.

Another participant during the focus group discussion remarked that:

"Alcoholics stray and laps which can lead to high chance of relapse resulting to death (not taking medication), Low self – esteem can kill as a result of depression and suicide or

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involvement in accident and other behaviors such as losing respect, shame to the family, theft, low productivity, dependence, self –neglect, involve in domestic violence can lead one back into drinking" **(K.I.I, 2022).**

This implies that positive sense of self helps them maintain recovery process through prompting and engaging in work, fine management, mentoring the client into a useful person to the community; social network helps the recovering addicts to be reminded about the decision they made to be sober, for example having positive peers, family, friends in the group meeting who are supportive of the addict's substance free lifestyle. Data regarding meaningful activities was sought, as revealed in Table 6 below.

Table 6: Descriptive Statistics Results about Meaningful activities and interests

Meaningful Activities and interests	Mean	Std. Deviation	Interpretation
I don't feel the interest in trying for any meaningful activity	3.41	1.21	High
I am afraid to participate in different activities because of drinking alcohol	3.28	1.34	Average
My participation in community activities will help me to stop drinking	3.70	1.18	High
I have trouble concentrating and prefer to dream about how things could be when I stop drinking	3.89	1.18	High
Having substitute activities helps me to avoid drinking alcohol	4.03	1.24	High
Pooled Mean & Standard Deviation	**3.66**	**1.23**	

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low

Source: Primary Data (2022)

The descriptive statistics in Table 6, above presents an aggregate (Mean = 3.66, SD = 1.23) which implies that, there was high level of meaningful activities while the specific results show high score level of having substitute activities which help to avoid drinking alcohol with (Mean =4.03, SD=1.24), meaning that engaging the recovering alcohol addicts into meaningful activities and interests helps in the reduction of perceived sobriety and so, if patients are well prepared and well equipped from the rehabilitation facilities there will be reduced level or relapse due to perceived sobriety. Therefore, therapists need to improve the level of engagement of patients in meaningful activities and interests to improve the level of respondents who scored an average level of fear to participate in different activities because of drinking alcohol. Although the general result shows a high level, as indicated in the table above.

During the focus group discussion on meaningful activities, the majority of the respondents, *28/*30, said that*:*

"Meaningful activities help clients try out a number of alternatives that can be relevant once integrated into their recovery process; activities and interests usually keep us sober and able to have a positive view of ourselves. Meaningful activities like sports, playing other indoor games, divert our minds from thinking about alcohol. It helps us build a healthy body and physical fitness. It keeps us busy, not thinking of places or people we used to drink with. It keeps us occupied with activities, hence maintains recovery and prevents relapse to a greater extent. It helps us set realistic and achievable goals. Meaningful activities and interests help us make positive progress towards recovery, and it also helps us avoid relapse and achieve a sober life, build our self-esteem and values in life with success in all aspects of life. It helps us get busy, change our attitude, and stay sober. It helps us distribute and use our time effectively instead of being idle and thinking of drinking. It is very important because it breaks the addiction cycle" **(K.I.I, 2022).**

This means that meaningful activities help to divert their minds from activities that trigger a person to continue using alcohol. It keeps the person committed, hence less time for drinking. It helps them get positive rewards/outcomes, and this helps them build self-esteem and feel a sense of importance in life, which they had lost before, thus self-worth. It promotes self-esteem, and they act with positive options for those abstaining from alcohol. Promotes a sense of belonging, and it helps them to be self-assertive. It helps them become useful citizens in the country. Meaningful activities and interests help the recovering addicts have relaxed minds, relieve depressive mood, a refreshed body, induce sleep, and promote independence in daily life. It attracts more supportive, good friends. It improves a healthy daily routine, meaning that one may have no time for alcohol. They help to substitute negative behaviours. It helps to define roles and responsibilities. Provides an activity scheduled for the client and creates a sense of belonging, activities divert their minds from alcohol use related to activities and triggers"

During the focus group discussion, 25/30 of the respondents said that:

"Meaningful activities in occupational therapy are very encouraging because there we keep busy, making paper bags, cookery, art and craft work, which helps us keep sober for a longer time and fights our self –defeating behaviours. It encourages us to share experiences during sessions and teaching. It addresses the issues of perceived sobriety (premature discharge). Meaningful activities such as home

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chores are quite important because it enhances self-reward, which is very important in the self-actualization process. Interesting activities are equally important because it builds intrinsic motivation" **(K.I.I, 2022).**

Focused Group Discussion responses on recovery factors on meaningful activities and interests were also obtained. Meaningful activities are the various activities that keep clients busy and healthy, such as: praying, active participation in church, sports, physical exercises, attend group sessions and personal counseling including participating in family and village meetings and giving workshops, seminars and sensitization programs, participation in society change programs, doing farming, rearing poultry, pigs, goats, doing business of selling none-alcoholic products, running hotel, occupational therapy make addict develop a very clear sense of self. There are no indoor games in Butabika although some clients did not go through counseling, meaningful activities reduce craving as it keeps us healthy by eating/ good diet, sharing ideas, raise one's spirituality, helps one gain respect, helps to engage in helpful things, it helps us to discover self –worth, participation in society changes, I want to look for what to do as soon as I get discharged, bakery in occupational therapy helps them live in a moment, it provides them with alternatives, it shows that one can have fun without anything related to alcohol, it promotes health of mind, body and soul, it promotes togetherness/unity, it releases insecurity, stress and takes away boredom.

However, during the focus group discussion, respondents came up with the following challenges of not having meaningful activities:

"Any recovering addict who does not have meaningful activity after discharge is bound to lapse and eventually relapse. One can get into frustrations, which can lead to suicidal attempts, depression, loneliness, bitterness, domestic violence, joining a bad group for company, imprisonment, and being brought back to the rehabilitation centre for re-admission." **(K.I.I, 2022).**

This implies that most addicts lacked meaningful activities in life, but rather desire cravings for alcohol, occupy them, and other substances. However, lack of interest in gainful activities can also be a stumbling block to a successful recovery from alcohol and other drugs. Findings on addiction triggers were also presented; Table 7, below, has the summary of the results.

Table 7: Descriptive Statistics Results of Understanding Addiction Triggers

Understanding Addiction Triggers	Mean	Std. Deviation	Interpretation
My friends who do not drink alcohol keep me in their company	3.67	1.21	High
Finding positive ways to successfully manage my stress keeps me away from my friends who drink alcohol	3.42	1.35	High
Attending a fellowship makes me not think of drinking alcohol	3.34	1.28	Average
My drinking peers make it difficult for me to leave alcohol	3.64	1.27	High
I avoid the company of those who drink alcohol	3.61	1.32	High
I fear engaging in activities that do not allow me to drink alcohol	3.23	1.29	Average
I keep myself busy to avoid going back to drinking	3.79	1.27	High
Pooled Mean & Standard Deviation	**3.53**	**1.28**	

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low

Source: Primary Data (2022)

The descriptive statistics in Table: 7. show an aggregate (Mean = 3.53, SD = 1.28) which implies that, there was high level of understanding addiction triggers, while the specific results show high score level of keeping busy to avoid going back to drinking alcohol with (Mean =3.79, SD=1.27), this means that, helping patients in the rehabilitation facility focuses on addressing concerns around addiction triggers helps increase perceived sobriety as they look forward to maintaining sobriety; therapists need to effectively help alcohol addicts explore these areas seriously before discharge to avoid lapsing and this would help to strengthen the average respondents scored level; although, the general findings show high level.

In reference to understanding of addiction triggers**,** interview results with the respondents 29/30 reveal that*:*

"There are several factors that act as triggers to relapse, triggers are both internal and external, such as anger, going to bars, interacting with peers who use alcohol, sadness, celebration of new year and parties, family celebrations, guilt feeling, unfulfilled expectations such as stress, environment full of alcohol that is presence of bars, clubs, certain areas of campuses, company of friends who use alcohol, negative thinking, unemployment, failure to achieve a dream, poor relationships, poor emotional intelligence, loss and depression, self-isolation, not attending group counseling, lack of family support, watching films of people drinking or smoking due to idleness, exposure to alcohol-advertisements and sign posts getting back to the former friends with whom they use to associate, drinking times, and staying with people who sell or make beverages and environment they live in, social functions, environment

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*especially where alcohol is exposed, always having a budget for any amount, influence of old friends among others we encourage them to stay away from friends who use alcohol and drug but rather get busy with meaningful activities, avoid stressful environment, idleness, exposure to substances / triggering places, stress, financial and other forms of stress"***(K.I.I, 2022).**

Therefore, old friends and negative thought patterns, social cycle of friends, being idle, failure to identify positive coping strategies, bad peer influence, lack of social support, lack of productive engagement, and poor emotional management are still common. Most triggers are from the environment at home and peer pressure. It was advisable, however, to avoid a stressful environment at home, peer pressure, and the people clients associate with. Negative peers at the place of socialization, poor financial management, lack of meaningful engagement, being overconfident about addiction triggers, inability to handle negative emotions, and boredom relating with peers who are not motivated to quit alcohol use should be ignored.

Interview with 28/30 of the respondents said that:

"Relationship challenges, childhood abuse, trauma, PTSDs, stress, depression, other mental illness, urge to drink, boredom, following routine, financial challenges, life crisis, chronic illnesses like HIV, academic stress, social group, anxiety, and low self- esteem are challenges to improve. However, keeping oneself busy to avoid idleness and talking about them helps them live in a better relationship with self and others because an idle mind is the devil's workshop. Attending Alcoholics Anonymous group to gain more knowledge of coping mechanisms and having new peer groups, keeping busy to avoid boredom, would encourage them not to think of alcohol but rather focus on the new goal." **(K.I.I, 2022).**

During the focus group discussions on understanding addiction triggers, the respondents shared about the importance of patients' awareness of the addiction triggers:

*"I have been desiring to stop or decrease drinking, but it was very difficult to do so. I could try for one week or two, but again get to drinking, and when I don't drink, I feel lonely. The way I see things here, all depends on someone's mindset, so the experience can be positive or negative. Challenge triggers of relapse. I am now going to make new friends and try to let go the old friends as my counselor told me, but I really don't know how easy it will be on my part given my past experience that has brought me back here to avoid relapse, to keep sober, it helps in the recovery process to know that recovery is possible, to understand that I am responsible for my recovery, help me avoid those triggers to keep sober, and it helps me to get knew friends who are productive and alcohol free"***(K.I.I, 2022).**

They also discussed the challenges of addiction triggers during the focus group discussion, such as:

"Things that lead addicts into relapse are: things that lead one into lapse and finally relapse, an experience of having an emotional reaction to something disturbing you, and this can lead you into taking alcohol or drugs. It can be an internal discomfort that comes from within the person. It can be a memory, a physical sensation, or an emotion. It can be a reminder of a past experience of drinking. This reminder can cause a person to feel overwhelmed, saddened, anxious, or panicked. It can also be an external event or circumstances or activity that may produce very uncomfortable emotional or psychiatric symptoms, such as anxiety, panic, and discouragement" **(K.I.I, 2022).**

It was, however, noted that negative addiction triggers can influence an individual from recovery process as a result of unhealthy environment, stress, poverty, unemployment, money, negative belief and attitude, negative cultural influence, idleness, having difficult personality, being in the company of people who are negative, lack or poor family support, over protection from family and friends, personal decisions, friends –peers, family issues, domestic violence.

During the focus group discussion, one of the respondents said:

"*For me, I got into drinking because my family members have too much hope in me, and at the same time, I have peer pressure. I am a student, my parents want me to study medicine, but I realize I am losing my confidence and getting scared easily. So, in order to show them that I am a man after sharing with my friends, they introduced me to alcohol and drugs in order to survive. If you are not working and you are not studying, then why are you not drinking? Slogan".* **(K.I.I, 2022).**

There are also other reasons that make one get into drinking, which participants identified as:

*"loss of dear ones, friends and family member (s), environment situation, traumatic experience, childhood experience, anger, peer pressure, technology (social media), New alcohol Brand adverts) on TVs and promotions, Dates of the month 20th April weeds smoking day, Music, Parting, Social galleries, Boredom, Friend who takes alcohol can lead you to relapse, Peer influence, Idleness, Adventure and curiosity, Personality problem, Stigmatization by the people around you, Attitude of the people around you, Denial, Loss of dear ones, Stress from the surroundings, Depression, Tensions, Traditional and cultural seasons of celebrations, Being jobless, Stigma, Festival seasons, Having empty promises, Loss of dear one, Toxic people, Heart breaking relationships loss, Family background using alcohol, Some clients are brought into the rehabilitation forcefully"***(K.I.I, 2022).**

Therefore, the environment at home after rehabilitation is not suitable because everyone's eyes at home are on the clients to buy a bottle of beer and drink it in the presence of their family members. Families are ready to see an alcoholic fail rather than recover, so the client decides to take revenge by drinking himself full or silly. Their family members are more focused on seeing them fail, and some of the family members do not want to see them; too many

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expectations by family members; some of them want to read and know all information from my phone and then report to their counselor. The correlation between hope, sense of belonging, and perceived sobriety was studied.

Regarding the effect of alcohol addiction recovery interventions on perceived sobriety, interviews with the respondents revealed that the majority of the key informants 18/28 said that:

"The process of the patient's recovery was dependent on the family; sensitization is a need for the family to accept the challenge that alcohol addicts are having; failure always results in relapse, which can be rated 5/10 relapse cases. Other factors resulting in relapse, such as peer influence 80%, stress due to family reactions 15% and other factors take 5%. Furthermore, the overall level of recovery of the patients would stand 40/100 (moderate), and this depends on the family support system, the patient's level of insight, and both emotional and intellectual reasons for admission. Few patients are discharged, and yet more admissions occur as treatment is a continuous process. Sponsors need to be educated about the nature of drug use in the body so that they are able to help the patients based on their health status. Some of the patients keep escaping from the hospital; they come back with sacks of drinks" **(K.I.I, 2022).**

Therefore, recovery is generally average and good, because it can be up to 30%, depending on how many come back after relapse. The overall level of recovery was fair, given the patients' response to medication administered. The minimum number of stays in the rehabilitation is 1-2 months, and the maximum stay in the rehabilitation is 3 months. I believe by that time the alcohol addict would have recovered fully from alcohol, although recovery depends on the patient's target goals and ambitions. Nevertheless, by 3 months, the patient would have fully recovered from alcohol in the treatment facility. The level of recovery was high, but the challenge comes when the patients are discharged and sent home, and they find no support in the family, then they relapse. That is when they are brought back, or others bring themselves back to the facility, while some refuse to go back home.

During the interview, 17/30 of the respondents said that:

*"The recovery level was very low; patients keep coming back again and again to the hospital for rehabilitation due to the challenge of failing to do without alcohol, in the Butabika hospital, patients are usually restricted from accessing alcoholic beverages, so it is difficult for us to know if someone has recovered from alcohol use or not even if they tell us they will not drink any more, but once they are discharged, it is a different story and that is what made the relapse level go high and frequent re-admission because it is only after discharge that is when an individual can prove that he is not drinking after being exposed to the community where alcohol is available everywhere"***(K.I.I, 2022).**

During the interview, 12/30 of the respondents said that:

"The level of recovery is average. Prognosis is good, depending on the self -motivation at present, and some patients have a positive attitude about results, to quick recovery, unlike those who are dragged into the facility by either the police or the family members. Most of the patients who recover are those who were not forced to come for rehabilitation but rather came in willingly and have the insight" **(K.I.I, 2022).**

Out of the majority of the interviewees, 8/30 revealed that:

"On a scale of 10, 6 patients recover from alcohol, and at list 40% have been in a treatment facility before and have recovered and are still sober, despite the fact that there are many factors that cannot be controlled in the community and families which affect the process of recovery" **(K.I.I, 2022).**

However, some of the patients who lack insight and sometimes escape from the facility, and others do not want to attend therapy sessions because they don't know why they are in the facility. In addition, triggering environment, under resource/equipment, poor adherence by the clients, poor government policies, and lack of full family support were factors that needed to be addressed to help streamline issues surrounding recovery as well as rehabilitation, requiring a multi-systemic approach, which is so hard to put in place.

As indicated in Table 5. Results from the Focused Group Discussions conducted at Serenity rehabilitation centre and Butabika national referral hospital. Participants who were involved were 24 in number. They were categorized into two groups, each having two groups (of 6 participants). The findings on social and cultural interventions revealed that culturally, alcohol use is encouraged for several reasons, and it was never considered bad to take it, as long as it is taken responsibly. Alcohol was part of a culture, and it was usually taken in the evenings for socialization, unity, togetherness, even when paying dowry. Alcohol was part of the items considered very important according to some cultures here in Uganda, where some people are actually proud of being a drunkard because it was passed down to the generation what their ancestors used to do. It was believed by some cultures that if one doesn't drink, and the father happens to die, people may not come to support him and will not be considered as one of the village members because one does not fit in the society, so as a result, everyone, especially men, takes alcohol.

The facility provides us with counseling and guidance, which prepares addicts to face the community and the challenges in it. However, the challenges are just too many, and the time left can be like one or two weeks for someone to go home. Addicts engage in daily activities of attending classes, one-on-one and group sessions, sports, and the gym for physical fitness. They are also providing mental therapy for all patients in the hospital. The information given here was top-down; clients are just packed with information from books, the internet, and DSM-5. The counsellors and the doctors try their best to

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attend to the patients, to see that they are not the same. Some of them give addicts their time to listen to their story and guide them on how to positively look at their situation with hope for getting better, which encourages some of them to get serious, and it makes them look at their condition with hope instead of feeling hopeless. One of the respondents during the focus group discussion revealed that:

"Sometimes some family members discourage us from recovering for example my case, I have ever told my family since I am bad, leave me alone after all it is my life and, on that day, I went and drunk silly and slept in the bar; the next day when they got me, I was dragged direct to Butabika and here I am, there is no psychosocial support given for me as well as the other clients admitted in Kirinya, Biina, Kireka and female convenient ward. Here, the staff come to work and go back to their homes, counselling is done for the patients in ADU, and we who are admitted in other wards are not allowed to enter the gate of ADU, even if some of us are here because of an alcohol problem. Counselors do not follow up with the client to ask why clients do not come for counseling, so clients go to see their counselors if they want; if not, they stay. The medication we get helps to treat our tremors and withdrawal symptoms, which helps us to stabilize, and after we are discharged to go back home with our problems. Allow me to say that the world out there does not understand us, nor can it help us solve our problem, but instead it drags us into frustrations, and that is why some of us resort to drinking. However, the one-on-one counseling and guidance some of us receive helps us look at life differently. Some of the counselors are really professionals and are caring; they help us think and believe that life can be lived differently and productively. I must say that I am not the same person compared to the time I came, but not much has changed in my life. The help I get from my fellow clients is better than from the counselor who does not understand my situation. We need counselors who care and understand us as addicts, but not people who judge us and condemn us. Some counselors listen more to our sponsors than to us, they report us to our sponsors, and they make decisions for us without involving us, including signing a contract on our behalf as if we are children" **(K.I.I, 2022).**

Respondents expressed the concern that some counselors discuss clients, giving assessment results and reports to their families, other than involving the clients; they skip the provision of involving the clients in making decisions, but the counselors instead decide with their families, hence making their families blame them and helping counselors to maintain their jobs. Some of the counselors do not prepare clients for the sessions; they just come surprisingly. Some counselors are disgusted with clients, so now the clients are counseling themselves because they go for counseling, and one was given a book to read and then asked to report in the next session. One of the respondents during the focus group discussion reported that:

"Sometimes we have family therapy and session before we are discharged but sometimes some of our family members don't come for the session and sometime, they come as for me, whether my family come or not it makes no difference because my counsellor listen to what my family say about me and they are the one determining my stay here and going home if my family say I should not go home, but stay for more one month, I have no choice. Some of our families have abandoned us here and do not want to know about us. Mine only comes to blame me and investigate how I am doing, and add more days for my stay here". **(K.I.I, 2022).**

However, one participant during the focus group discussion acknowledged that:

"Counselling has helped me to appreciate my family members for bringing me here to the rehabilitation facility because they want to see me keep sober and healthy, not hating me as I thought before, because everyone in the family was hard on me. Now my relationship with my family and myself has changed since I came to the rehabilitation facility; I have realized great change in my life, and I have come to accept that life without alcohol is actually better. I thank my mother for bringing me here, I think I will try not to disappoint her efforts to spend on me. I have come to understand that recovery starts from me, by accepting that I am an addict and that change is possible. I ask myself what my attitude is about change since it comes from me? I want to make a difference in my life and to show those who think I cannot change that change is possible. Sister, be prepared to receive my phone calls for your support. This sharing of group session has touched me deeply, I thank God for being part of this discussion" **(K.I.I, 2022).**

Focused group discussions were also conducted on issues related to pharmacological interventions. It was noted that the first thing done was to carry out an assessment and blood testing, followed by medication to reduce the amount of alcohol in the body. But the recovery of an individual depends on the perception of the individual's attitude toward recovery; if one wants to recover, they will commit themselves and will recover. The medication they get helps them stop the withdrawal symptoms, most of which come when they are affected by too much use of alcohol, as some use both alcohol and drugs. It was noted that counselling was good, but there was little time for individual encounters most of the time, people are discharged without going through counselling, and some of the clients have been there for weeks but do not have a counselor. The counselors who help the clients are students who have no experience with addiction (have not drunk alcohol nor used drugs), but only give clients book knowledge. Clients need competent professionals to be the ones to help them. There was effective group therapy, and that is what some people go with; the program provides information on a positive attitude and reduced sobriety. Some of the clients during the focus group discussion noted that:

"Many people relapse because there is no follow-up after discharge, hence challenges at home make a person relapse;

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counseling services are not provided to all alcohol addicts in all the wards. I think the counselors are only taking care of those in ADU, hence some of us in other wards are left out and discharged without receiving counseling services. We only depend on the medication given to us to stop the withdrawal symptoms, and when the time comes, we are discharged without any information on how to cope with the challenges back at home. Patients at Kireka are taken all as mentally sick people, so we are left to survive on drugs only; there is no psychosocial support given, like counseling or group sessions. We usually hear about this" **(K.I.I, 2022).**

Finally, a focused group discussion on understanding addiction triggers was done; respondents shared experiences they go through, and they acknowledged the need for sobriety as the shared experience helped them learn from each other's journeys in life. The sharing helped them forge a way to recovery and live a productive life. They discussed the challenges of relapse and how to overcome the triggers of relapse. It gives them fewer chances of relapsing, social support on a personal basis, provides work for those seeking jobs or a change of workplace, bring togetherness the recovering addicts through the AA program.

Generally, most patients benefit from the recovery interventions used in the rehabilitation facilities. Service providers reported a high rate of patients recovering from addiction in the facility, although when they get into the community, they are faced with challenges and eventually lapse, hence failing to stay sober. Family support, peer support, support from superiors, employers at workplaces, and the community are factors that prevent relapse and help recovering addicts stay sober, since these factors are very important to the recovery and maintenance of sobriety. Families, friends, or an environment free from alcohol can support their recovery. They have to speak out in case of any challenge and seek support from caring family members, relatives, and any sober friends. Families need to be brought on board as part of the social support systems and be encouraged to participate in self –help monitoring groups for all recovering addicts. Patients need follow-up after discharge. Therapists advised that the care should not only be based on the institutional level but also be extended to the local communities because after-care is very important, yet most of the patients are not followed up after discharge, and some of the families do not want to associate or identify with them anymore due to the damage they caused.

The study attempted to mediate the recovery factors effects on alcohol addiction recovery interventions, recovery factors, and perceived sobriety in Butabika National Referral Hospital and Serenity rehabilitation centre. Figure 1 below has the details.

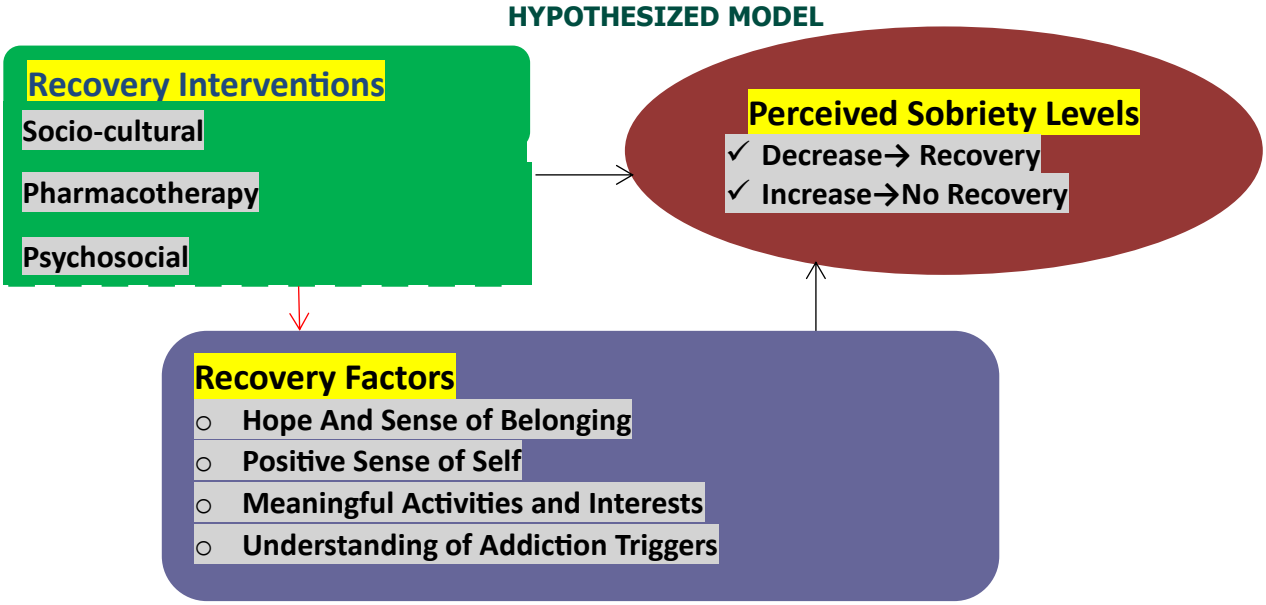

Figure 1: Hypothesized Path Analysis Model of Recovery interventions, Hope, and Sense of Belonging and Perceived Sobriety

Source: *Primary Data (2022)*

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Recovery interventions include: socio-cultural, pharmacotherapy, and psychosocial. This influenced perceived sobriety level to decrease→ recovery and increase→ no recovery; together with recovery factors such as hope and sense of belonging, positive sense of self, meaningful activities and interests, and understanding of addiction triggers.

Table 8: Goodness-of-fit statistics for the Reduced SEM Model

Goodness-of-fit statistics	Value
Root mean squared error of approximation	0.168, 95% CI (0.132–0.206)
Pclose	0.000, < 0.05
Comparative fit index (CFI)	0.964
Tucker-Lewis index (TLI)	0.728
Standardized root mean squared residual (SRMSR)	0.112
Coefficient of determination (CD)	0.854

Source: Primary Data (2022)

The study's Goodness of Fit results, as per the reduced model in Table 8, reveal a better fit for the reduced SEM based on the Comparative Fit Index (CFI) of 0.964 since it was greater than 0.05. This result demonstrates that the reduced model was more acceptable in predicting perceived sobriety.

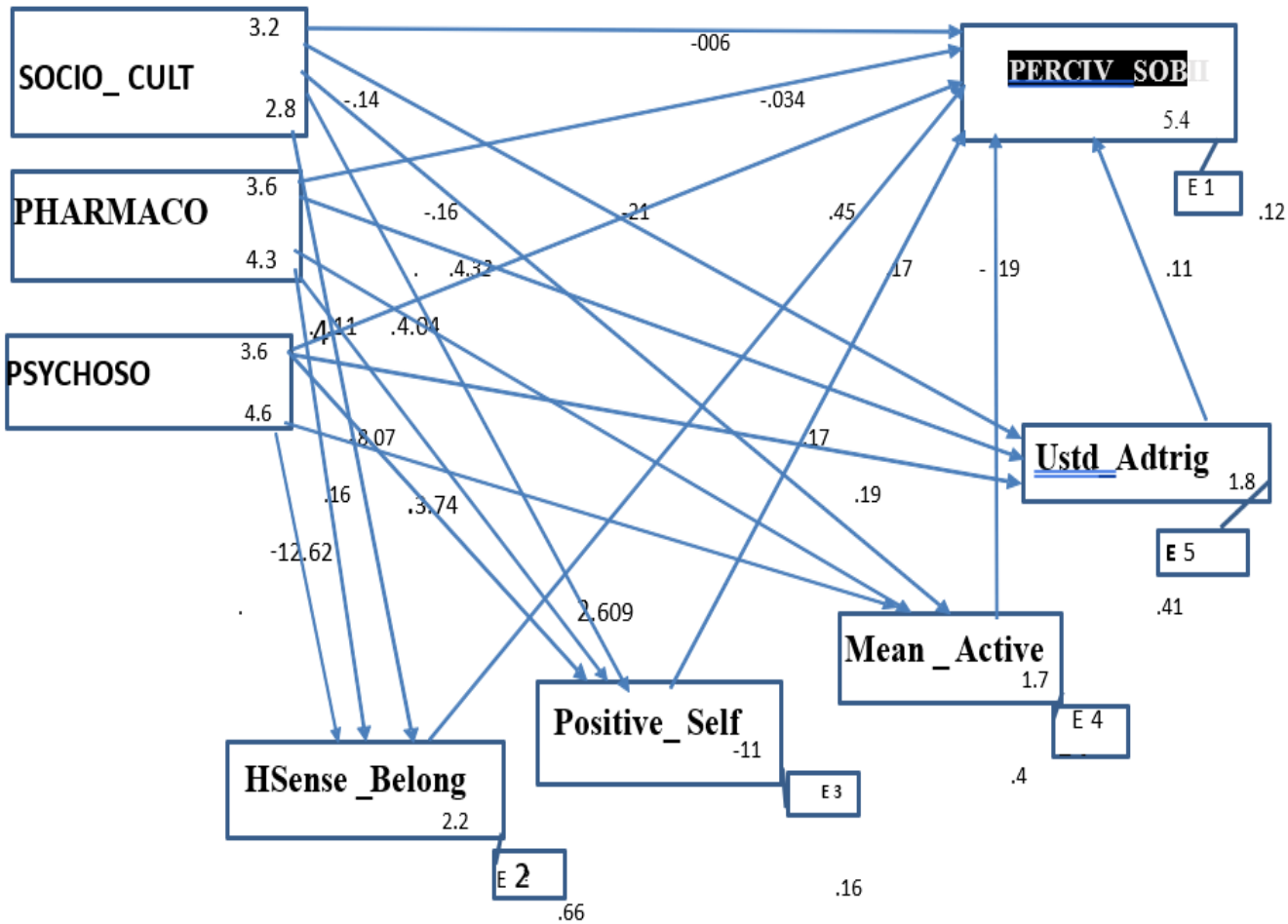

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Figure 2: Full Structural Equation Model (SEM) of the interrelationships between Recovery interventions, Factors of Recovery, and perceived sobriety

Source: Primary Data (2022)

The SEM Model shows the interrelationships between alcohol addiction recovery interventions and perceived sobriety. The model can work with an understanding of addiction triggers, meaningful activities and interests, positive sense of self, hope, and sense of belonging, psychosocial intervention, pharmacotherapy, and socio-cultural intervention**.** All these work hand in hand to reduce perceived sobriety levels as illustrated above.

Figure 2 of the full SEM model through path analysis, socio-cultural intervention has a negative but significant direct effect on perceived sobriety with -.0.006<0.05 as its indirect effect on perceived sobriety through understanding addiction triggers has -.0.14 <0.05, and meaningful activities and interests have-.0.16 negative but positive weakly significant indirect effect on perceived sobriety. It also has positive indirect effects on a positive sense of self, with .0.19>0.05 effects on perceived sobriety, which leads to possible recovery from perceived sobriety. Finally, it had a positive and significant but weak effect on perceived sobriety with .0.16>0.05 level of significance, as well as hope and sense of belonging with .0.16>0.05 positive significance level. This means that socio-cultural intervention leads to perceived sobriety with no or low level of recovery or sobriety, as many researchers focus on the causes and consequences, and some on treatment.

This recovery intervention can be used in the treatment facilities with a lot of emphasis placed on it in order for the therapists to gain insight and help caregivers to be able to offer effective individualized treatment that may meet the needs of the recovering alcohol addicts, since, from the study findings, although the application of socio-cultural intervention has a significant and negative indirect effect on perceived sobriety. This was in confirmation with Table 9.1 through hope and sense of belonging (β=-.185, P=0.234> 0.05). This means that the more socio-cultural interventions, the more the recovery to a feasible level. Figure 2 SEM model shows the interrelationship between recovery interventions and perceived sobriety in the presence of mediating effects on perceived sobriety**.**

In the full SEM model through path analysis, pharmacotherapy intervention had a negative but positive effect, .0.034 direct effect on perceived sobriety. Pharmacotherapy further has -.0.014 negative but significant indirect effects through understanding addiction triggers on perceived sobriety, leading to a reduction in the level of sobriety; as Pharmacotherapy is also interrelated with meaningful activities and interests, negative but significant -.0.016<0.05 level. Pharmacotherapy has a .0.019>0.05 positive indirect effect on perceived sobriety through positive sense of self, as well as Pharmacotherapy had a .0.016>0.05 positive indirect effect on perceived sobriety, 0.045>0.05 through hope and sense of belonging -.034>0.05, which is a positive significant effect. This implies that Pharmacotherapy works best when there is an interrelationship with other factors, resulting in a reduction in perceived sobriety.

The interrelationship helps to reduce alcohol and other substance use through pharmacological therapies, which diminishes the spread of infectious diseases and reduces the level of criminal activity. improves the rate of employment, reduces intake, and affects the demand for drugs since effective recovery management involves education, for many recovering alcoholics obtain high school graduation equivalency degrees or embark upon higher education, so as to enable alcoholics to get stuck into addictive behaviors because of job-related challenges. From the study findings, the application of pharmacotherapy intervention has got positive and significant indirect effect on perceived sobriety through a positive sense of self (β=.390, P=0.000** < 0.05). This implies that the more the pharmacotherapy intervention, the more positive the sense of self at a feasible recovery level.

Furthermore, the full SEM model of path analysis shows psychosocial intervention with a direct effect on perceived sobriety -.0.021>0.05, negative, weak, but significant level. The interrelatedness helps to reduce sobriety indirectly through understanding addiction triggers, which is .0.19 >0.05 positive indirect effect on perceived sobriety. Psychosocial intervention further had a negative but significant indirect effect on perceived sobriety -.0.019 >0.05 through meaningful activities and interests, as well as .0.39 >0.05 positive significant effects on perceived sobriety through a positive sense of self. Finally, psychosocial intervention contributes to the reduction of perceived stress through hope and sense of belonging, with .0.08 >0.05, a significant positive effect. Meaning that, the more psychosocial interacts with the recovery factors, the more feasible recovery is in place. This helps psychosocial intervention help the individuals to manage continued vulnerability and develop healthy, productive, and meaningful lives.

It entails the process of resolving addiction issues with the development of cognitive, emotional, physical, educational, relational, occupational, and ontological health that enables recovering patients to experience commitment to serve a positive outlook and attitude about life and establish relationships, which could be instrumental in lowering perceived sobriety levels. Evidence from the study findings clearly indicates that the application of psychosocial intervention had a significant indirect effect on perceived sobriety through a positive sense of self (β=.298, P=0.007**<0.05). This implies that the more psychological intervention, the more positive sense of self to feasible recovery level.

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The full SEM model of the mediating recovery factors of understanding addiction triggers with socio-cultural, pharmacotherapy, and psychosocial interventions .0.011>0.05 had a positive but weak and significant indirect effect on perceived sobriety. Understanding of addiction triggers exploration of the addict's environment and social interactions, as well as family relationships that could act as a trigger to relapse, which was a strong subjective component in neurobiology, which increases the vulnerability of the individuals' experiences of maladjustment in order to either minimize or fail to, hence leading to no recovery or recovery, determining the level of perceived sobriety. Understanding addiction triggers had a significantly negative direct effect on perceived sobriety (β =-.114, P = 0.023**> 0.05), which means that the more the understanding of addiction triggers, the greater the reduction in alcohol, hence leading to feasible recovery.

The full SEM further shows the interconnect between socio-cultural, pharmacotherapy, and psychosocial intervention, causing direct and indirect effects on perceived sobriety as the mediating effects lead to reduction through meaningful activities and interests. 0.19 <0.05 negative but significant effect on perceived sobriety. Meaningful activities and interests play a very important role in the recovery process of an individual using alcohol, which was one of the interventions used in the rehabilitation that caught the attention of many recovering patients, which was an ideal for recovery. Within the rehabilitation centre, such activities as cookery, physical exercises (soccer), help patients stay in contact with others within the premises of the rehabilitation centres in an endeavour to lower perceived sobriety levels. Meaningful activities have a significant negative direct effect on perceived sobriety (β -.190, P=0.000** < 0.05), which means that increasing meaningful activities leads to a feasible recovery from alcohol.

The SEM model through path analysis of the recovery factors on perceived sobriety .0.17 >0.05 has a positive and significant indirect effect on perceived sobriety, making recovery possible. A positive sense of self-esteem was a very essential determinant for the psychological well-being of an individual recovering from addiction. The individual's competence that makes the person deal with the challenges of living in the company of alcohol users with a positive mind of recovering from perceived sobriety can give rise to a healthy and authentic lifestyle of dignity to address the high perceived sobriety levels. Positive sense of self had a significant direct effect on perceived sobriety (β=.167, P= 0.019** > 0.05). This means that increasing the positive sense of self leads to the reduction of perceived sobriety, hence recovery in place.

The full SEM model in relation to the direct and indirect effects of the socio-cultural, pharmacotherapy, and psychosocial interventions together with the mediating recovery factors on perceived sobriety has .0.045 >0.05 positive significant effects on perceived sobriety through hope and sense of belonging, which plays a very significant role in reducing the level of sobriety. This leads to an individual's motivation and behaviour, leading to embracing change. This emotion is ruled by cognition, just as an individual who possesses goals that are realistic within reach becomes communally and ethically acceptable. This mental energy pushes an individual towards the goal and acts as a driving force to positive attitude and thought, leading an individual to develop autonomy and commitment to enable the person to pursue and maintain a desired goal which was alcohol free so that perceived sobriety levels are curbed down, though hope and sense of belong as revealed from the results got a negative significant direct effect on perceived sobriety (β=-.447, P=0.000** < 0.05), which means that, increasing hope and sense of belonging would lead to a feasible recovery from perceived sobriety.

Table 9: Goodness-of-fit statistics for the Full SEM Model

Goodness-of-fit statistics	Value
Root Mean Squared Error of Approximation	0.259, 95% CI (0.204–0.317)
Pclose	0.000, < 0.05
Comparative Fit Index (CFI)	0.871
Tucker-Lewis's index (TLI)	0.356
Standardized Root Mean Squared Residual (SRMSR)	0.095
Coefficient of determination (CD)	0.759

Source: Primary Data (2022)

The findings presented in Table 9 show a diversity of goodness-of-fit test statistics. This result shows a poor fit for the Full SEM based on the Root mean squared error of approximation (RMSEA) (RMSEA = 0.259> 0.10). There was equally a poor fit for the model based on the Standardized root mean squared residual (SRMSR) (SRMSR = 0.095> 0.05).

The Comparative Fit Index (CFI) of 0.871, in addition, proves an unacceptable fit of the model in predicting perceived sobriety since it was less than 0.90. In order to improve the fit, the variables that were statistically insignificant and those meeting a cutoff of 0.2 were then excluded from the reduced model. The estimates of the full SEM model were presented in Table 8.6 above. The results following the Goodness of Fit analysis for the reduced model are presented in Table 7 above.
below.

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Final Model: Structural Equation Model (SEM) of the interrelationships between Recovery interventions, Factors of Recovery, and perceived sobriety.

This model seeks to minimize relapse in recovering addicts due to perceived sobriety; therefore, increased reduction in relapse results in recovery, hence long-term sobriety. Figure 3 shows the structure of the reduced model, which was the final model.

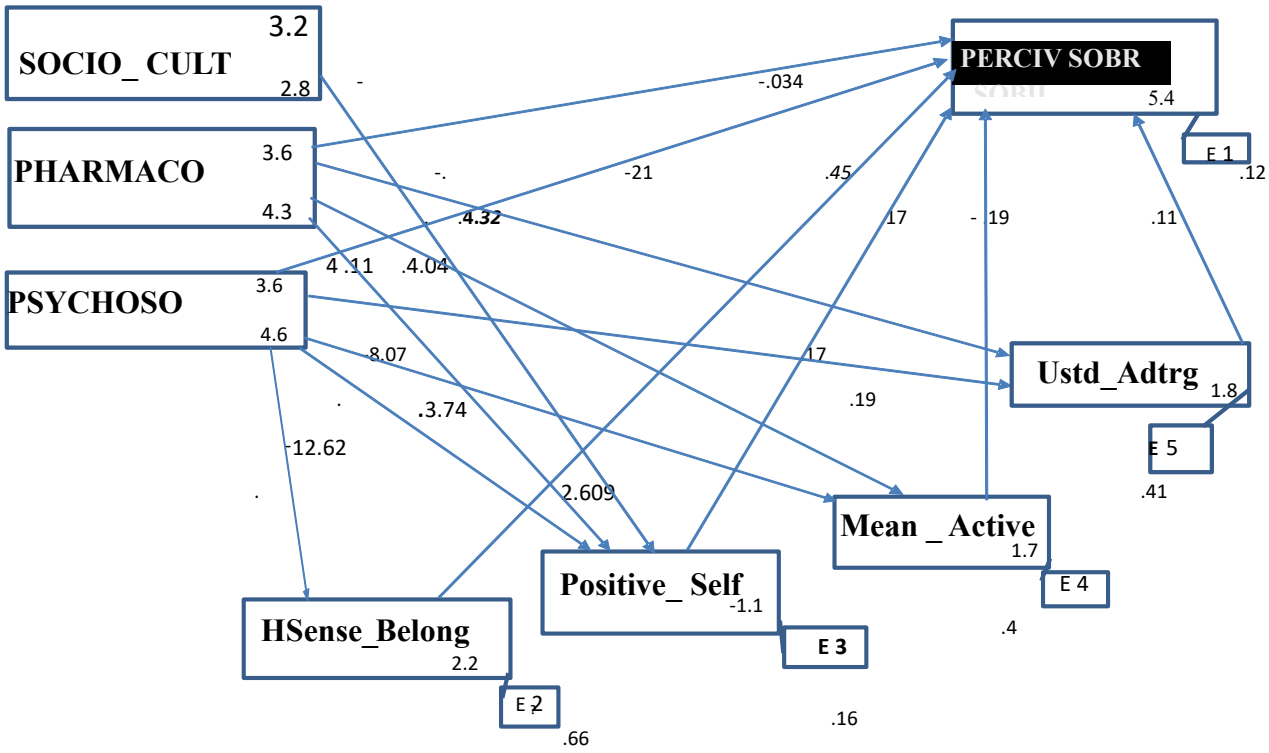

Figure 3: Structural Equation Model (SEM) of the interrelationships between Recovery interventions, Factors of Recovery, and perceived sobriety

Source: Primary Data (2022)

The SEM model in Figure 3 above shows the interrelationships between recovery interventions that include recovery factors and perceived sobriety. The model can work with an understanding of addiction triggers, meaningful activities and interests, positive sense of self, hope, and sense of belonging, pharmacotherapy intervention, psychosocial intervention, and socio-cultural intervention**.** All these work hand in hand to reduce perceived sobriety levels as illustrated above.

The reduced model in Figure 3 above had direct and indirect effects on perceived sobriety, whereby understanding of addiction triggers has a positive and significant .0.013 >0.05 effect on the cut off for effectiveness .0.028 >0.05 indirect effect of pharmacotherapy through understanding addiction triggers to reduce perceived sobriety. Pharmacotherapy intervention helps to reduce alcohol and other substance use through pharmacological therapies which diminishes the spread of infectious diseases, reduces the level of criminal activity, improves the rate of employment, reduces intake and affects the demand for drugs since effective recovery management involves education, for many recovering alcoholics obtain high school graduation equivalency degrees or embark upon

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higher education, so as to enable alcoholics get stuck into addictive behaviours because of job related challenges.

Understanding addiction triggers in the reduced SEM model has .0.025>0.05 level of significant to improve the strength of psychosocial intervention helps the addicts in the exploration of experiences, that talks about factors that affects the individual level of functioning, some of which could have led to repetitive use of action of alcohol which produces their consequences on the behaviour, emotional or cognitive functioning which results into the preoccupation in addiction disorders which leads to a relapse.

The reduced SEM through the path analysis looks forward to minimizing sobriety and enforcing recovery has .0.016 >0.05 positive significant effect on perceived sobriety, resulting in reduced sobriety at .0.02 <0.05 negative effect on perceived sobriety. This means that there could be either no or less recovery from sobriety. Meaningful activities and interests, however, play a very significant role in the recovery process of an individual abusing alcohol, which is one of the interventions used in the treatment facilities that caught the attention of many recovering patients, which was an ideal for recovery. Within Butabika National Referral Hospital and Serenity rehabilitation centre, such activities as cookery, physical exercises (soccer), help patients stay in contact with others within the premises of the treatment facilities in an endeavour to lower perceived sobriety levels.

The SEM reduced model shows that positive sense of self had .0.019 > 0.05 through path analysis with Positive sense of self, self-esteem is a very essential determinant factor for the psychological well-being of an individual recovering from addiction, as well as Pharmacotherapy strength of indirect effect of .0.039>0.05 positive significant level with .0.091 >0.05 indirect effects; Which means that there was possible reduction level of perceived sobriety. Thus, an individual's competence enables the person to deal with the challenges of living in the company of alcohol users with a positive mind. Recovering from perceived sobriety can give rise to a healthy and authentic lifestyle of dignity to address the high-perceived sobriety levels.

In the reduced model, hope and sense of belonging had .0.08 >0.05 positive significant indirect effect on perceived sobriety with a direct effect .0.045>0.05 positive effect on perceived sobriety, which leads to a feasible recovery. Hope and a sense of belonging play a very significant role in an individual's motivation and behaviour, leading to embracing change. This mental energy pushes an individual towards the goal and acts as a driving force to a positive attitude and thought, leading to the development of autonomy and commitment to enable the person to pursue and maintain a desired goal, which was alcohol free, resulting in reduced sobriety. Psychosocial intervention helps individuals to manage continued vulnerability and develop healthy, productive, and meaningful lives. It entails the process of resolving addiction issues with the development of cognitive, emotional, physical, educational, relational, occupational, and ontological health that enables recovering patients to experience commitment to serve, positive outlook, and attitude about life and established relationships, which could be instrumental in lowering perceived sobriety levels.

In the reduced model, Socio-cultural intervention had a .0.019 >0.05 positive significant effect on perceived sobriety and a 0.091>0.05 positive weak significant indirect effect on perceived sobriety. This means that the more positive sense of self, the more recovery in place. Socio-cultural intervention often focuses on the causes, consequences, and some on treatment. This recovery intervention can be used in Butabika National Referral Hospital and rehabilitation centres in order to gain insight and help caregivers to be able to offer effective individualized treatment that may meet the needs of the recovering alcohol addicts.

The study findings revealed that alcohol addicts can best recover using a two-stage Structural Equation through pathways analysis. The first path is by use of a direct path analysis recovery model, such as: Pharmacotherapy, positive sense of self, meaningful activities, understanding addiction triggers, hope, and a sense of belonging, which has a direct effect on the recovery of the individual abusing alcohol. The second pathway was by use of an indirect path analysis recovery model, such as: Positive sense of self, socio-cultural intervention, pharmacotherapy, Psychological, Alcoholics Anonymous (AA) model, and meaningful activities, meaning that these elements have to combine with the direct factors in order to create an effective impact on the addict, resulting in keeping sobriety or abstinence. In confirmation, (Covington, 2002, Green, 2006, Sun, 2008) noted that, people appear to recover from perceived sobriety through multiple pathways such as detoxification, residential intensive treatment, or support recovery community re-integration, mutual aid group and outpatient services while (Kaskutas and Ritter, 2015), White, 2012 argued that, pathways to recovery may be abstinence –based or moderation-based and Medication – based. However, Kelly et al. (2017) said that people experience recovery progress in internal and external treatment regimen contexts, natural recovery, or recovery with no treatment. The determinant of this process was the individual.

The study findings revealed that, individuals recover from alcohol via multiple pathways such as socio-cultural interventions, pharmacotherapy interventions, psychological intervention, and AA model of intervention as some individuals recovery using direct interventions while other individuals recovery through indirect pathways that is the combination of interventions (Covington, 2002, Green 2006, Kelly et al., 2017, Sun, 2008), affirmed that detoxification, residential intensive treatment, residential supported recovery, outpatients services as interventions brought about recovery of the individual using excessive alcohol. Pathways to recovery could be in two ways: direct

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pathway and indirect pathway are means through which the individuals experience progress in the treatment context. (Kelly et al., 2017), argued that natural recovery occurs in half of the individuals, recovery using natural treatment, which many people in society need to understand and adapt to support the individuals with an alcohol problem, to help them unlearn the drinking habit.

Furthermore, Table **10 below** shows the coefficient and standard error of the SEM model of interrelationships between recovery interventions, hope, sense of belonging, and perceived sobriety among addicts.

Table 10: Coefficient and standard error of the SEM model of interrelationships between Alcohol addiction recovery interventions, recovery factors, and perceived sobriety among addicts

Variables	Coefficient	S.E.	Sig.	95% C. I	
				Lower	Upper
Direct Effects					
Perceived sobriety					
Socio-cultural	.006	.068	0.930	-.127	.139
Pharmacotherapy	-.137	.061	0.025**	-.257	-.017
Psychosocial	-.034	.055	0.540	-.142	.075
Hope and a sense of belonging	-.447	.038	0.000**	-.523	-.373
Positive sense of self	.167	.071	0.019**	.027	.306
Meaningful activities and interests	-.190	.052	0.000**	-.293	-.088
Understanding addiction triggers	-.114	050	0.023**	-.212	-.016
Indirect Effects					
Hope and sense of belonging					
Socio-cultural	-.185	.156	0.234	-.489	.119
Pharmacotherapy	.034	.125	0.787	-.212	.279
Psychosocial	.080	.123	0.515	-.161	.321
Positive sense of self					
Socio–cultural	.192	.077	0.012**	.042	.342
Pharmacotherapy	.390	.0618	0.000**	.269	.512
Psychosocial	.298	061	0.007**	.045	.283
Meaningful activities and interests					
Socio-cultural	-.161	.121	0.186	-.398	.077
Pharmacotherapy	.192	.098	0.050**	.000	.384
Psychosocial	.340	.096	0.030**	.152	.529
Understanding of addiction triggers					
Socio-cultural	-.205	.123	0.095	-.446	.036
Pharmacological	.251	.099	0.011**	.057	.446
Psychosocial	.165	.097	0.089	-.025	.356

Source: Primary Data (2022)

Table 10 shows the coefficients and standard errors of the SEM model of interrelationships between Recovery interventions, hope, sense of belonging, and perceived sobriety among addicts. The findings revealed the direct effects of the variables socio-cultural, pharmacotherapy, psychosocial, hope, and sense of belonging, positive sense of self, meaningful activities and interests, and understanding addiction triggers towards perceived sobriety. It also shows the indirect effects of socio-cultural, pharmacotherapy, and psychosocial towards hope and sense of belonging, positive sense of self, meaningful activities and interests, as well as understanding addiction triggers.

Direct Effects

Socio-cultural intervention Results in the Full Model, table 10 above, indicate a positive, insignificant direct effect on perceived sobriety (β=0.06, p=0.930 >0.005). This means that increasing socio-cultural intervention has no feasible effect on recovery. There is a need for further investigation into socio-cultural intervention and perceived sobriety.

Pharmacotherapy intervention had a significantly negative direct effect on perceived sobriety (β=-0.137, p=0.0025 <0.05). This means that increasing pharmacotherapy would lead to feasible recovery from perceived sobriety.

Psychosocial intervention had a significantly negative direct effect on perceived sobriety (β= -.034, p= 0.540 >0.05). This means that increasing psychosocial

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intervention would lead to feasible recovery from perceived sobriety.

Hope and sense of belonging had a significantly negative direct effect on perceived sobriety (β=-.447, *p*=0.000 <0.01). This means that increasing hope and a sense of belonging will lead to a feasible recovery from perceived sobriety.

Positive sense of self had a significant direct effect on perceived sobriety (β=.167, *p*= 0.019<0.05). This means that increasing the positive sense of self leads to the reduction of perceived sobriety, hence recovery in place.

Meaningful activities and interests have a significantly negative direct effect on perceived sobriety (β-.190, *p=0.000, p* <0.01). This means that increasing meaningful activities leads to a feasible recovery from alcohol.

Understanding addiction triggers had a significant and negative direct effect on perceived sobriety (β=-.114, *p*= 0.023, p>0.05). This means that the more the understanding of addiction triggers, the greater the reduction in alcohol, hence leading to feasible recovery.

Indirect Effects

Hope and sense of belonging

Socio-cultural: the application of socio-cultural intervention had a significantly negative indirect effect on perceived sobriety through hope and sense of belonging (β=-.185, *p=0.234, p*>0.05). This means that the more socio-cultural interventions, the more the recovery to a feasible level.

Pharmacotherapy: the application of pharmacotherapy intervention had a positive, significant indirect effect on perceived sobriety through hope and sense of belonging (β=.034, *p=0.787, p*> 0.05). This means that the more pharmacotherapy interventions, the more the recovery to a feasible level.

Psychosocial: the application of psychosocial intervention had a positive, significant indirect effect on perceived sobriety through hope and sense of belonging (β=.080, *p*=0.515 >0.05). This implies that the more the psychosocial intervention, the more the recovery to a feasible level.

Positive Sense of Self

Socio –cultural: the application of socio-cultural intervention had got positive, significant indirect effect on perceived sobriety through a positive sense of self (β=.192, *p*=0.012>0.05). This means that the more socio-cultural interventions, the more positive sense of self at a feasible recovery level.

Pharmacotherapy: the application of pharmacotherapy intervention had a positive, significant indirect effect on perceived sobriety through a positive sense of self (β=.390, *p*=0.000 <0.01). This implies that the more the pharmacotherapy intervention, the more positive the sense of self at a feasible recovery level.

Psychosocial: the application of psychosocial intervention has got positive and significant indirect effect on perceived sobriety through a positive sense of self (β=.298, *p*=0.007 <0.05). This implies that the more psychosocial intervention, the more positive sense of self to feasible recovery level.

Meaningful activities

Socio- cultural: the application of socio-cultural intervention has a negative, insignificant indirect effect on perceived sobriety through meaningful activities (β=-.161, *p*=0.186 >0.05). This means that the more the socio-cultural intervention, the more meaningful activities and interests to feasible recovery level.

Pharmacotherapy: the application of pharmacotherapy intervention has a positive, significant indirect effect on perceived sobriety through meaningful activities (β=.192, *p=0.050, equal* to 0.05). This implies that the more pharmacotherapy interventions, the more meaningful activities to a feasible recovery level or less recovery.

Psychosocial: the application of psychosocial intervention has a positive, significant indirect effect on perceived sobriety through meaningful activities (β=.340, *P=0.030, p*>0.05). This means that the more the psychosocial intervention, the more meaningful activities improve to a feasible recovery level.

Understanding addiction triggers

Socio- cultural: the application of socio-cultural intervention has a significantly negative effect on perceived sobriety through understanding addiction triggers (β=-.205, *p*=0.095 >0.05). This means that the more socio-cultural interventions, the more understanding of addiction triggers improves recovery to a feasible level.

Pharmacotherapy: the application of pharmacotherapy intervention has a significant positive effect on perceived sobriety through understanding addiction triggers (β=.251, *p*=0.011<0.05). This means that the more pharmacotherapy, the more understanding of addiction triggers improves recovery to a feasible level.

Psychosocial intervention: the application of psychological intervention has a positive and significant effect on perceived sobriety through psychosocial intervention (β=.165, *p*=0.089 >0.05). This means that the more the psychosocial intervention, the more understanding of addiction triggers improves recovery to a feasible level.

Evaluation of Perceived Sobriety Led to Paths

As a way of deciding on the most appropriate path to be adopted for better perceived sobriety, the multiplicative model was applied to get the different paths as depicted in Figure 9.2. The results in this regard are presented in Tables 11, 12, and 13.

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Table 11: Direct, Indirect, and Total Effects on Perceived Sobriety among addicts

Path		Direct Effect Value	Indirect Effect Value	Total Effects (%)	Interpretation
1	Pharmacotherapy	0.13	-	-	-
2	Hope sense belongs	0.45	-	-	-
3	Positive sense of Self	0.091	-	-	-
4	Meaningful activities	0.20	-	-	-
5	Understanding addiction triggers	0.13	-	-	-
6	Socio-Cultural-Positive sense self	0.19	2.609	2.7	
7	Pharmacotherapy-Understanding-Addiction triggers	0.28	4.32	4.6	
8	Pharmacotherapy-meaningful activities	0.16	4.04	4.2	
9	Pharmacotherapy-Positive sense of self	0.39	4.11	4.5	
10	Psychosocial- meaningful activities	0.33	8.07	8.4	
11	Psychosocial- Positive sense of self	0.16	3.74	3.9	
12	Psychosocial- Hope and sense of belonging	0.28	12.62	12.9	Highest
Overall Total Effects (Direct and Indirect)				**41.2%**	**< 50%**

Source: Primary Data (2022)

As in Table 11, constituting socio-cultural intervention through a positive sense of self contributes only 2.7% of the total effect to the reduction of perceived sobriety among addicts.

Path 12, which was a psychosocial intervention through hope and sense of belonging, contributes 12.9% total effect of the reduction of perceived sobriety among addicts. This path is considered the best, which calls for interventionists to talk more about psychosocial application, integrating it with hope and a sense of belonging.

The fitted model contributes 41.2% to the reduction in perceived sobriety, which was less than 50%. This call for a modified model, Integrated Self and Community Awareness Recovery (ISCAR), was developed as illustrated in Figure 9.

Table 12: Correlational Results of recovery factors on alcohol addiction recovery interventions and perceived sobriety

Correlations

			Perceived sobriety level
Recovery Factors		Pearson Correlation	-.131
		Sig. (2-Tailed)	.112
		N	285
		Alcohol Addiction Recovery Interventions	Perceived Sobriety
Alcohol Addiction Recovery Interventions	Pearson Correlation	1	.169**
	Sig. (2-Tailed)		.001
	N	285	285
Perceived Sobriety	Pearson Correlation	.169**	1
	Sig. (2-Tailed)	.001	
	N	285	285

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

Source: Field Data (2022)

Table 12 shows a weak positive relationship between the level of alcohol addiction recovery interventions and the level of perceived sobriety ($r = .131$, $p = 0.112$). This relationship is statistically significant since a p-value of

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0.112 is greater than a 0.05 level of significance. Therefore, the stated null hypothesis is rejected, meaning that there is an influence of alcohol addiction recovery interventions on perceived sobriety. Results in Table 9 above also show that there is a positive, but significant relationship between perceived sobriety and alcohol addiction recovery interventions (r = 0.169, p = 0.001). The findings suggest that those who apply alcohol addiction recovery interventions are likely to exhibit perceived sobriety. The likelihood of exhibiting perceived sobriety is explained by a positive linear relationship (r = 0.169). The null hypothesis was tested against the directional (alternative), and the result showed that H_4: There is a statistically significant effect of recovery factors on alcohol addiction recovery interventions on perceived sobriety in Butabika National Referral Hospital and Serenity Rehabilitation Centre in central Uganda. Table 13, below, has the details.

Table 13: Multiple Regression Results for recovery factors, Alcohol Addiction Recovery Interventions, and Perceived Sobriety

Variables	Coefficient	S.E.	Sig.	95% C. I Lower	Upper
Direct Effects					
Perceived sobriety level					
Pharmacotherapy	-.128	.059	0.030**	-.243	-.012
Positive sense of self	.091	.057	0.111	-.021	.204
Meaningful activities and interests	-.196	.051	0.000**	-.297	-.096
Understanding addiction triggers	-.133	.049	0.008**	-.231	-.035
Hope and belonging sense	-.451	.038	0.000**	-.526	-.376
Indirect Effects					
Recovery interventions					
Positive sense self					
Socio-cultural	.192	.076	0.012**	.041	.342
Pharmacotherapy	.390	.061	0.000**	.269	.511
Psychosocial	.163	.060	0.007**	.045	.283
Meaningful activities and interests					
Pharmacotherapy	.157	.095	0.098	-.029	.343
Psychosocial	.334	.097	0.001**	.145	.524

SEM; Structural Equation Modeling, SEM model endogenous variables are Sense of Belonging Aspects; exogenous variables are Recovery Interventions Aspects, CI confidence interval

Source: Primary Data (2022)

Table:13 presents multiple regression results for recovery factors, alcohol addiction recovery interventions, and perceived sobriety. The study findings revealed some direct effects and indirect effects on the variables.

Pharmacotherapy interventions have a positive, weakly significant direct effect on perceived sobriety (r= .128, p=0.030 < 0.05). This means that increasing pharmacotherapy intervention will lead to feasible recovery to perceived sobriety.

Positive sense of self has a positive, weakly significant direct effect on perceived sobriety (r=.091, p= 0.111 >0.05). This means that increasing a positive sense of self leads to the reduction of perceived sobriety, hence recovery in place.

Meaningful activities and interests had a significantly negative direct effect on perceived sobriety (r -.196, p=0.000< 0.01). This means that increasing meaningful activities and interests may partially lead to a feasible recovery from perceived sobriety.

Understanding addiction triggers has a significant negative direct effect on perceived sobriety (r= -.133, p= 0.008<0.05). This means that more understanding of addiction triggers may partially lead to a reduction in perceived sobriety.

Hope and sense of belonging; has got a positive, weak, significant direct effect on perceived sobriety (r= 451, p=0.000<0.01). This means that increasing hope and a sense of belonging will lead to a feasible recovery to reduce perceived sobriety.

Socio-cultural intervention has a positive and significant indirect effect on perceived sobriety (r=.192, p=0.012 >0.005). This means that increasing socio-cultural intervention through a positive sense of self will lead to a reduction in perceived sobriety.

Pharmacotherapy intervention had a significant indirect effect on perceived sobriety (r= .390, p=0.000 <0.01). This means that increasing pharmacotherapy through a positive sense of self will lead to feasible recovery to reduce perceived sobriety, hence recovery is realized.

Psychosocial intervention has a significantly positive indirect effect on perceived sobriety (r= -.163, p= 0.007> 0.05). This means that increasing psychosocial

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intervention through a positive sense of self will lead to feasible recovery to perceived sobriety.

Pharmacotherapy intervention has a significantly negative direct effect on perceived sobriety (r= .157, p=0.098 >0.05). This means that increasing pharmacotherapy through meaningful activities and interests will lead to feasible recovery to minimize perceived sobriety, hence recovery in place.

Psychosocial intervention had a significantly positive indirect effect on perceived sobriety (r= .334, p= 0.001< 0.05). This means that increasing psychosocial intervention through meaningful activities and interests will lead to a reduction in perceived sobriety, hence recovery in place. The details of these results are shown in the descriptive results of the constructs of recovery factors below, as well as the details of the qualitative results.

Results of Hypothesis

The null hypothesis was tested against the directional (alternative), and the result revealed that H_4: recovery factors have a statistically significant effect on alcohol addiction recovery interventions and on perceived sobriety in Butabika National Referral Hospital and Serenity Rehabilitation Centre.

Contribution to Knowledge (ISCAR Model)

Recovery was reflected by the experiences of sober or fruitful existence in addition to the remediation (BFI Consensus panel 2007), as the study findings named it the ISCAR model to address the internal locus of control as one of the aspects that focuses on the patient's desire for excessive use of alcohol. The patient is helped to manage continued vulnerability and develop a healthy, productive, and meaningful life (elGuebaly, 2012; White, 2007). In addition, White (2007) noted that recovery is the process of resolving addiction issues with the development of cognitive, emotional, physical, educational, relational, occupational, and ontological health, while Hansen, Ganley, and Carlucci (2008) revealed that recovering individuals experience commitment to serve, positive outlook, and attitude about life, and established relationships.

The theoretical foundations of the study in Chapter Two and the empirical evidence from the study findings in Chapter Six enabled the researcher to develop and propose a new and more dynamic model that could reduce relapse due to perceived sobriety. The Integrative Self and Community Awareness Recovery (ISCAR) model was developed and proposed. This new hybrid dynamic recovery model was developed as an attempt to integrate the viable aspects of the previous models, namely: the Recovery Pathways model, the Psychosocial Model, AA Model of intervention, in an endeavor to come up with a diversified recovery approach.

As addiction affects the entire being of an individual, therapists need to keep alert in order to make the ISCAR model work effectively; Marquis, (2008), asserted that, it was important to understand addiction and recovery by exploring the objective aspects of an individual from the Upper-Right quadrant perspective that takes care of all the positivistic and objective perspectives of individual structures, events, behaviours, and processes. The individual perceives alcohol as a life-supporting necessity, much like breathing, thirst, and hunger (Brick and Ericson, 1999). This explains why most addicts cannot stop on their own in spite of adverse consequences and why addicts need external support.

Guy Pierre du Plessis, (2004), identified six dimensions designed to honor all vital aspects of the recovering individual's life, a comprehensive and balanced treatment model, the protocol was to address the challenges of alcohol addiction which focused on six dimensions of life such as: physical (the physical and neurological aspects of recovery), mental (the cognitive aspects of the recovery process), emotional (the emotional and therapeutic aspects of recovery), spiritual (the spiritual and existential aspects of recovery), social (interpersonal, cultural, and social relationships of the individual), and environmental (the administrative, legal, monetary, and environmental aspects of the individual's life). That enables recovering addicts to achieve their full potential and satisfy their innate needs as unique human beings. However, Holford (2008) noted that many addicts have deficiencies in brain chemistry even prior to their addiction, but many factors can create a reward-deficient brain chemistry, such as genetics, prenatal conditioning, malnutrition, stress, lack of sleep, physical or emotional trauma, and the long-term use of mood-altering substances. If not rectified, this brain chemistry deficiency would continue indefinitely into an addict's recovery, resulting in recovering addicts being prone to relapse even though they are abstinent and engaging in psycho-spiritual work. This reality was worth integrating with the new study, ISCAR, to support the holistic recovery of perceived sobriety.

Treatment requires more focus when creating and maintaining behaviour changes; this led to the establishment of the non-pharmacological treatment program, which focused on developing and sustaining behaviour change in the reduction of alcohol use (Lindstrom, 1992). Focusing on the influence of alcohol addiction recovery intervention on perceived sobriety, the theory of learning explains the causal factor of addiction as a behaviour acquired through learning principles such as acquisition and reinforcement based on classical and operant conditioning, that is, pairing the pleasure of an addictive substance with the environmental cues, which later becomes habitual and has the power to cause serious cravings. The theory further suggests that addiction was a learnt behaviour, which can be unlearned through cue exposure, that is, the consistent presentation of cues without pairing (Horvath et al., 2014); pairing alcohol with induced nausea has been used as treatment. ISCAR model programs and their operating standards are set to

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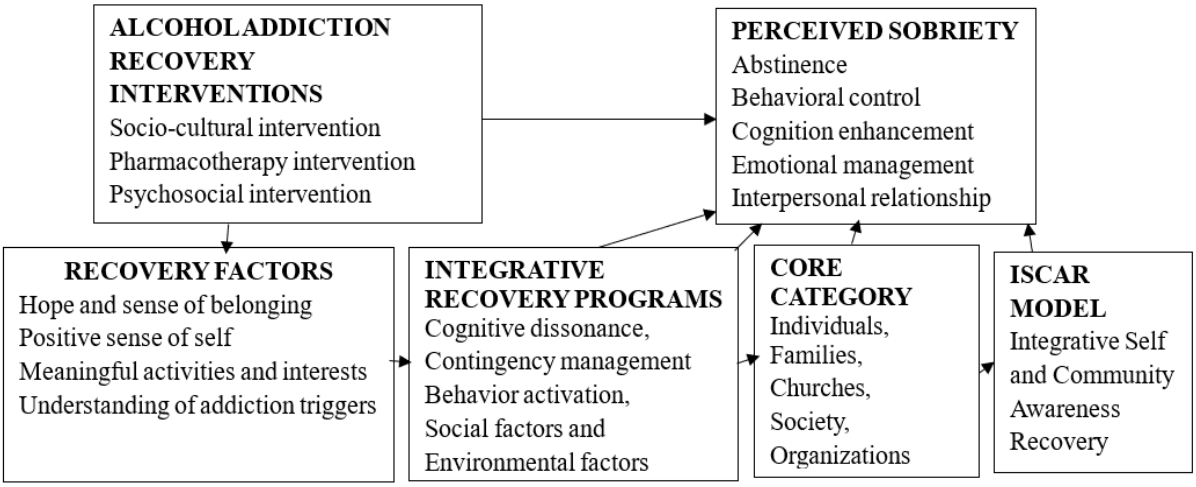
address the above challenges in order to minimize perceived sobriety with and outside the treatment facilities.

Community Awareness Recovery (ISCAR) Model

Figure 4: Integrated Self and Community Awareness Recovery (ISCAR) Model



Source: Developed by the researcher from the study findings (2022)

Explanation of the Integrated Self and Community Awareness (ISCAR) Model

The ISCAR Model works in a way that Alcohol Addiction Recovery Interventions use the parameters and the programs to create change, meaning to support the recovering addicts to view life meaningfully compared to living a life of addiction. The parameters are: Socio-cultural intervention, Pharmacotherapy intervention, and psychosocial intervention have a direct influence on perceived sobriety (abstinence, behavioural control, cognition enhancement, emotional management, and interpersonal relationships).

At the same time, Alcohol Addiction Recovery Interventions help recovery factors such as hope and sense of belonging, positive sense of self, meaningful activities and interests, and understanding of addiction triggers, which help to minimize perceived sobriety. It is also noted in the above model that factors of recovery affect integrative recovery programs such as individual, family, church, society, and organizations, which are instrumental in reducing perceived sobriety.

Finally, Integrative Recovery Programs are vital in enhancing the recovery factors such as hope and sense of belonging, positive sense of self, meaningful activities and interests, understanding of addiction triggers, which have a direct influence on perceived sobriety and empower the ISCAR Model, comprising of Integrated Self and Community Awareness together with Recovery to minimize perceived sobriety.

DISCUSSION

Introduction

This section presents the discussion of the fourth objective based on the evaluation of recovery factors on perceived sobriety in Butabika National Referral Hospital, Kampala, and Serenity Rehabilitation Centre, Wakiso District, Uganda.

The findings result from Table 8.11. Showed a weak positive relationship between the level of alcohol addiction recovery interventions and the level of perceived sobriety ($r = .131$, $p = 0.112$). This relationship was statistically significant since a p-value of 0.112 >0.05 level of significance; therefore, the stated null hypothesis is rejected, meaning that there is an influence of alcohol addiction recovery interventions on perceived sobriety. Although the results showed a very weak linear positive correlation, there is a significant relationship between perceived sobriety and alcohol addiction recovery interventions ($r = 0.169$, $p = 0.001$). The findings suggest that those who apply alcohol addiction recovery interventions are likely to exhibit reduced perceived sobriety. The likelihood of exhibiting reduced perceived sobriety was explained by the positive linear relationship ($r = 0.169$).

However, according to Stevens, Buchanan, Ferrari, Jason, and Ram, (2014), hope plays a very significant role in an individual's motivation and behaviour leading to embracing change; whereas Averill, Catlin and Chon, (1990) considered hope as an emotion ruled by

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cognition, just as an individual who possessed goals that are realistic within the reach becomes communally and ethically acceptable. However, Snyder et al. (1991) described hope as a mental energy that pushes an individual towards a goal; it was a driving force to a positive attitude and thought; it leads an individual to develop autonomy and commitment to enable the person to pursue and maintain a desired goal, which was alcohol free. An individual in the process of recovering establishes hope and a sense of belonging, even if faced with stressful circumstances, would always remain determined to the process of recovery, while the willpower to choose to live alcohol free or not is dependent on the individual.

However, Irving, Seinder, Burling, Pagliarini, and Robbinssisco (1998) argued that it is important to help substance users recovering to be hopeful and develop autonomy to overcome recurring challenges so that they may understand that recovery is possible and it is within their control to keep maintaining sobriety. In addition, individuals in recovery who have strong hope for getting better from perceived sobriety must be helped to be psychologically prepared to generate pathways to face the different triggers of relapse, such as threats from peers, families, communities, as well as the daily life struggles, such as the urge to drink (Mathis, Ferrari, Groh, and Jason 2009). The integrative self and community awareness model developed from the findings of this study suggests that therapists need to help addicts develop strategies for managing addiction triggers so as to have hope and a sense of belonging in order to maintain sobriety.

The study findings revealed that, hope keeps them focused as they generate strategies to keep them sober as Jackson, Wernicke and Haaga, (2003), affirmed that, hope as a predictor of entering a voluntary treatment programme contrary to those forced in the treatment facility and choose to remain in a state of hopelessness, anger and bitterness because it was not their wish to be in the treatment facility. However, Muller and Clausen (2015) commented that it was important to continue helping individuals struggling with addiction to value the quality of life, to allow them to gradually realize the relevance of being in the treatment facility, and may eventually desire change in life with time. The ISCAR model encourages the therapist to help patients explore other positive alternatives that may help them live a productive life after discharge to avoid relapse.

In conformity, Jason, Stevens and Ram, (2015), noted that, hope and a sense of belonging are an important aspect of reducing the level of perceived sobriety, a supportive environment that makes an individual feel accepted and understood where they can become constructive and live sober, operating within the rule of the family, and community which was one of the commitments and desire they wish to achieve as a purpose of abstaining from drinking alcohol. Abstinence was an important factor in the recovery of an individual seeking sobriety; hope was the underlying drive to the recovery process (Stevens, Jason, Ferrari, and Hunter, 2010). The study findings revealed that, the due to the limited human resources in the treatment facilities, majority of the patients are not helped to explore issues surrounding hope and sense of belonging, but depend on detoxification or pharmacological intervention, hence resulting to high rate of readmission due to relapse, the ISCAR model was developed to strengthen and improve the quality of counselling services reduce perceived sobriety during and after discharge.

However, Kelly et al. (2017) noted that not all individuals who seek to leave drinking alcohol identify as being in either recovery, nor do those who are in recovery eliminate drinking alcohol, but rather, recovery was a complex concept. According to Kaskutas et al. (2014), some individuals in recovery view recovery as more than holistic; addiction recovery embraces elements of human wellbeing and helping professionals to support the individual to maintain sobriety, which helps to reduce excessive alcohol behaviour. However, Best and Lubman, (2022); Laudet and Humphreys, (2013), noted that, one aspect of recovery would to help the individual to concentrate on wellbeing to reduce the risk of relapse which is not the case with most individuals who have ever been in the treatment facility; which is a very big concern in Uganda yet there are several treatment facilities in the country. The study findings identified the gap from the above scholars. Despite the available treatment facilities, there is a high rate of perceived sobriety as a result of limited professional human resources, resulting in relapse shortly after discharge. The study recommends professional training of personnel to improve the quality of service in the treatment facilities, both private and public.

Substance Abuse and Mental Health Services Administration (SAMHSA, 2012) revealed that, without a sense of hope, an individual cannot have a better future and will not be able to overcome the internal and external impediments to recovery. Merriam –Webster, (2020) added that hope in an individual was accompanied by fulfilment of expectations, whereas Bruininks and Malle (2005) focus on addressing critical positive issues in life that the person had little control over. However, Larsen et al. (2007) believe that hope is a unique concept that helps the individual to set a practical goal, identify an avenue, and make a sustained effort towards goal achievement Snyder, 2002).

Positive sense of self had a significant direct effect on perceived sobriety (β=.167, P= 0.019** greater than 0.05). This means that increasing the positive sense of self leads to the reduction of perceived sobriety, hence recovery in place. Mruk (2013) addressed positive sense of self as self-esteem, which is a very essential determinant factor for the psychological well-being of an individual recovering from addiction. Mruk (2013) added that it is the individual's competence that makes the person deal with the challenges of living in the company of alcohol users with a positive mind of recovering from perceived sobriety that gives rise to a healthy and authentic lifestyle of dignity, hence

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maintaining sobriety. Nolen (2020), in reference to Karen Horney (2002), asserted that low self-esteem leads to the development of a personality that craves support and respect, indicating a desire for personal satisfaction. However, Gergen (1987) and Kohut (1977) observed that developing a positive self -concept helps an individual to adapt to change and have the ability to make the right decision about their behaviour. Having a positive sense of self helps the recovering alcohol addict to link to high achievement in living a life without drinking alcohol. In the ideal situation, this is what is supposed to be done in the treatment facilities however, the findings of this study revealed gap in the service delivery in Butabika National Referral Hospital which needs an urgent intervention to address the gap which led to the establishment of the integrative self and community awareness recovery (ISCAR) model to empower the therapist to improve service delivery to reduce the high rate of perceived sobriety.

According to Bednar and Peterson (1995), the development of a positive sense of self helps an individual to maintain self-esteem and makes the person strong and confident in understanding the values of making personal decisions about the surrounding situations. Gergen, (1991), affirmed that, people with sense of self modify their self-concepts through change and internal awareness, which help them build inherent self-esteem Gergen, (1991). He added that a positive sense of self makes an individual achieve personal goals, those in leadership are faced with daily challenges, and they need to embrace them with maturity. In reference to the results, the study findings revealed that recovering alcohol addicts, once helped to develop a positive sense of self, would work towards maintaining sobriety and achieving a desired goal.

Studies have shown that a positive sense of self empowers the individual to develop internal self -value and respect other than seeking approval from outside Northcutt, (1991), Wallace, (1994), the study, findings revealed that, positive individual become useful citizens in the country because they re-programme their minds, attitude and begin to see the world in a different perspective and realize they actually wasted a lot of resources in drinking alcohol. "I really want to make a difference in my life because I realize my life has been a waste one of the participants said during focused group discussion" (Dutton et al., 2010) asserted that, once individuals have developed positive self -concept, the person was able to face the daily experiences with courage and even see opportunities in the challenges they are facing because their self- esteem and confidence will have been built, hence they even believe that they could complete tasks successfully.

Furthermore, Dutton (2010) observed that, as individuals learn to embrace abstinence with determination, the task of strengthening the positivity of identity at home and the place of work increases. Dutton (2010) added that as the individual level of functioning increases, they develop positive feelings, a sense of growth, adaptation, and coherence or balance. The study findings revealed that the ISCAR model suggests that therapists have the role to support the alcohol addict develop a positive sense of self by motivating them to realize their inner potential, a sense of self –regard to enable the recovering alcohol addict to become constructive with a positive evaluative perspective. Dutton et al., (2010) also, acknowledged that, social identity theory for creating more positive identity structures to increase the likelihood that people might perceive a person as virtuous with the following characteristics such as moral, authentic, compassionate, courageous and generous, which could increase both positive evaluation and positivity of virtuous identity content, which can inform the individuals understanding of the construction of more virtuous identities which is within each one. But some lacked the courage to expose and put it into productive use, which ISCAR encourages the therapist to support recovering addicts to explore and make productive use of life.

Meaningful activities have a significantly negative direct effect on perceived sobriety (β=-.190, P=0.000** < 0.05). This means that increasing meaningful activities leads to a feasible recovery from alcohol. According to Nordaunet and Saelor (2018), meaningful activities play a very important role in the recovery process of an individual misusing alcohol. Meaningful activities promote social recovery capital to prevent substance use and promote positive shared experience (Best et al., 2013; Davidson et al., 2006; Nordaunet and Selor, 2018; Vesesth et al., 2021; Weston et al., 2018). The study findings revealed that the majority of the respondents during focused group discussion acknowledged that meaningful activities and interests, as one of the interventions used in the rehabilitation facility, caught the attention of many recovering patients; hence, no one would like to miss, so it was ideal for recovery. Within the rehabilitation facilities, they have activities like cookery, physical exercises (soccer), which help them stay in contact with others within the premises of the facility.

The current study findings revealed that alcohol addicts' involvement in meaningful activities helps them to forget the urge to drink because they get busy doing rather than watching, which keeps their minds occupied and prevents them from thinking about the experience of drinking. Vesesth et al. (2021) assert that keeping busy, doing something personally, and sharing peer experience of being in the process of recovery are very important as they share productive plans for future maintenance of sobriety. As Eklund et al. (2012) and Tjomstand et al. (2020) asserted, describing occupations at home for the recovering addict creates an intimate connection and makes the individual have a sense of engagement and productivity. As Leufstadius (2008) and Nordaunet and Saelor (2018) observed, involvement into house activities makes them feel encouraged to keep in the routines and rhythms of the daily work schedules and able to take care of themselves and household chores.

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Nordaunet and Saelor (2018) further added that connecting the recovering alcohol addicts to their neighbours and social networks can be pleasurable with positive emotions of acceptance, making the individuals experience enjoyment of the activity and desire for more achievement and productivity, which positively contribute to the recovery, rather than isolating them and criminalizing their previous action, which draws an individual into loneliness and relapse. On the contrary, Blank et al. (2016) and Blank et al. (2015) acknowledged that social restrictions hinder the productive recovery process as they felt intimidated and out of place. According to Borg and Davidson (2008) and Kristiansen (2008), DeRuysscher et al. (2017), involvement of alcohol addicts in meaningful occupations makes them feel full citizens equipped with the opportunities to engage in alcohol-free meaningful relationships.

The study findings revealed that therapists play a significant role in awakening the minds of the addicts about the past jobs or responsibilities they enjoyed and the wish to get back to such tasks. As Nordaunet and Saelor (2018) and Nesse et al. (2021) assert, meaningful activities provide a sense of belonging and strengthen the individual's ability to face societal barriers to citizenship, and give them the opportunity to care for and share with others in need. (Doroud et al., 2015; Nordaunet and Saelor, 2018) added that meaningful occupation besides employment strengthens quality of life as the individual feels useful and positively reorganized in the community, which may be a motivating factor for others to recover as they share experiences. Understanding addiction triggers had a significantly negative direct effect on perceived sobriety (β=-.114, P= 0.023**> 0.05). This means that the more the understanding of addiction triggers, the greater the reduction in alcohol, hence leading to feasible recovery**.**

However, Koob and Volkow, (2016) noted that, most of research on addiction focus on neurobiological level, that talks more about neuro adaptions which is the repetitive action of drug on the brain systems that produces their consequences on the behaviour, emotional or cognitive functioning which results into the three phases of addiction that was binge or intoxication, withdrawal and preoccupation that produce a negative effect of alcohol in the body. In conformity, (Kim et al., 2017, Lee et al., 2018) assert that addiction disorders have a strong subjective component in neurobiology, which increases the vulnerability of the early childhood experiences of maladjustment, which was a human condition observed in the concept of trigger, "a stimulus that elicits a reaction". Trigger, as an element in the craving response, with the availability of the stimulus, could lead an individual to drink alcohol after a period of abstinence (APA, 2019). In relation to the current study, the findings revealed through ISCAR model application that, as an individual goes through the recovery process, it was important for the therapists to help them acknowledge the dangers of availability of alcohol or drug in their premises which was the stimulus that could trigger their desire to drink hence activating the drug related memories leading to reward anticipation and craving responses which eventually lead them to relapse. Witkiewicz et al. (2019) affirmed that therapists could provide addicts with coping skills to avoid triggers by providing them with cognitive capabilities to control the emotional response provoked by the trigger. Egiazaryan and Sudakov (2007) viewed the external stimulus reaction at a psychological level, which does not address the uniqueness of the complication that was the "internal" element that relates all levels of complexity (Smith, 2005; Anderson et al., 2012) that provokes behaviour due to the global situation of uncontrolled excessive use of alcohol.

However, Amsel (1992) argued that change from out to inside is justified by discovering that the high subjectivity of addiction makes no sense to blame something outside because the issue of subjectivity is complex, including frustration, inferiority, and no one understands except the individual person, and the frustration was understood as a global experience. Pessoa (2013) added that the frustration about the subjective view of alcohol abuse was a personal global condition, which left the whole personal evaluation of a stimulus response in a dilemma. ISCAR encourages therapists to support the recovery treatment facilities to help the addict deal with their subjective emotional state and provide a new meaning to external stimulus "trigger," which should not exclude the traditional ways of avoiding triggers that were to help them resolve the frustrations underlying addiction, and this should be done at the initial stage of an individual entering into the treatment facility.

Barett (2017) argued that the trigger stimulus arouses a very strong subjective experience depending on the circumstances around the person, which an individual needs to be aware of and understand that emotion is lived more as an expression of the complexity of personal life. Shin and Liberzon (2010) added that the individual's response to psychosocial stressors in a healthy way involves the hippocampus, amygdala, insula, and prefrontal cortices. Bird (2017) acknowledged that the limbic circuits underlie the formation of episodic memories and the integration of emotional processing, which was the essential element in craving and relapse by exposure to perceived sobriety. In conformity, Chas et al. (2011) added that the limbic prefrontal cortex was key in response to stimulus reactions to drug or alcohol.

However, Zilberman et al. (2019) emphasized that the therapists' action of triggering the negative perception of an addict through shared experience promotes resilience to the therapeutic tool in treating frustration, which was the subjective determinant point of understanding the lived experience. Therefore, the therapist's support of helping an addict work on the meaning attributed to the trigger was a creative act necessary for personal growth Walsh, 2002; Cicchetti, 2010), demonstrating restoration of the biological normality of the brain structure and function Barsaglini et

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al., 2014). This helps to reduce the challenge of relapse, focusing on avoiding triggers as a means of a healthy habit, which was subjective in nature, and remains uncovered in most addicts because they depend on medication that reduces withdrawal symptoms, and thereafter, they are discharged. The ISCAR model, being an integrative approach, encourages the therapist to address the subjective challenges which was deep seated within a person, by creating a trusting and congruent relationship with patients in the facility and helping them to face and deal with the reality in order to come up with better coping alternatives to life than depending on alcohol as a solution.

Generalizability of the study

Recovery interventions act as a very fundamental aspect in the life of people recovering from alcohol; it calls for adjustment and personal commitment in order to protect the individual from relapse and keep sobriety or maintain abstinence from alcohol use. To recover from alcohol use, one goes through a psychological process or stages of change (Prochaska and Prochaska, 2009). According to the Theory of Change, although change depends on an individual, people recover differently depending on the level of alcohol use. National Alcohol and Substance Abuse Information Centre (2014) indicated that several researchers have done studies about perceived sobriety and interventions, government and organizations have set rules, laws, and regulations, but the prevalence of alcohol is on the increase every day. There is a need for serious interventions to address the challenge.

Recovery acts as an outcome of a situation (Sonnentag, 2009); it identifies a profound individual's unique process of changing one's values, attitudes, goals, feelings, skills, roles, and a way of living a satisfying, meaningful desire contributing to life events caused by perceived sobriety. Recovery from perceived sobriety was a complex process. This study explored an individual's feelings about alcohol and went through an experience of activities as phase one, creating a change in the strain levels of the psychological state (Sonnentag, 2017). Recovery takes place in the beginning as an outcome, which leads the person into working towards keeping sobriety or maintaining abstinence.

The primary motivation for this research was to provide support in order to improve the health condition of alcohol addicts and thus prevent a high risk of relapse, and to reduce perceived sobriety. To provide clear-cut support, where there was inadequate care and other challenges of getting the individuals into the rehabilitation facility for treatment, seems to be a big challenge for the majority of the population abusing alcohol. Lastett et al. (2010) disclosed that, in a year, 1.3 million people are affected negatively due to excessive use of alcohol. This study sought to engage the recovering addicts, therapists, families, community politicians, and church authorities to take part in addressing the challenges of perceived sobriety using a structural equation through a path analysis model.

In Uganda, very few studies have little been carried out on the influence of alcohol addiction recovery interventions on perceived sobriety which aims at supporting the alcoholics to focus on their wellbeing, living a healthy, productive and meaningful life (White, 2007), for an individual to recover holistically, they need to be self-motivated, having positive sense of self and ready to face the challenges of peers in the community after rehabilitation (Best, 2014). Personal growth, which leads to abstinence or sobriety, was entrenched in the family and community that need recovery as a trigger and support system for an addict.

Conclusion

In conclusion, the study revealed that there was a statistically significant relationship between recovery factors, alcohol addiction recovery intervention, and perceived sobriety. Similar results were revealed from participants from Butabika National Referral Hospital and Serenity Rehabilitation Center, showing how recovery factors influence productive life other than addictive life. The recovery factors play a very significant role in the recovery of patients; therapists need to explore the lives of the patients and guide them according to the etiquette of living a positive, meaningful life free from alcohol. This helps them stay committed, hence less time for drinking. It helps them get positive rewards/outcomes, and this helps them build their esteem and feel they are important in life, which they had lost before, thus self-worth. Encouraging them promotes self-esteem as they act positively and learn to come up with options for abstaining from alcohol; it promotes a sense of belonging and helps them to be self-assertive and to become useful citizens in the country. Therapists should encourage addicts to choose meaningful activities that suit their desires, guide them to relax their minds, relieve their depressive mood, and refresh their bodies. It relaxes the mind, it induces sleep. It promotes independence in daily life. It attracts more supportive, good friends. It improves a healthy daily routine, meaning that one may have no time for alcohol.

Limitations of the study

Some respondents did not answer all the questions, while others disappeared with the questionnaires. There was a challenge of time keeping according to the appointment schedule for the data collection; some respondents were not available on the appointed date for the interview. This was overcome by constantly reminding them to avail themselves at the time of their convenience.

Covid 19 was another challenge as people feared contracting COVID-19 since some people were still recovering from the lockdown. To overcome this, the researcher endeavored to employ alternative means of gathering data from the study participants through phone calls and audio recording.

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The study used a sample of 338 respondents (drawn from the population of 2,800 in Butabika National Referral Hospital and Serenity rehabilitation center), results from which could not be generalized to the entire population of addicts in central Uganda, which is about 5,000 addicts including service providers in the country (UYDL, 2018/2019). The researcher tried to mitigate this by using statistical means based on the population of the study area.

The study was also prone to questionable external validity since only content validity. Statistical representativeness was needed to understand a phenomenon. In this study, the generalizations made were statistical rather than analytical.

Looking at the weakness of the qualitative approach, the researcher used interviews and focused group discussions; the researcher obtained extensive oral information during the survey interview. Interpretation was a challenge, while the quantitative approach was limited to highly structured data, which required a scientific method of analysis. Silverman (2016) noted that the techniques chosen to describe the process of data analysis and how the conclusions were formulated may differ. To avoid the weakness of each method, the researcher adopted a triangulation approach of combining the qualitative and quantitative approaches. Patton (1990) and Vulliamy, Lewin, and Steven (1990) argued that the available evidence of data was supportive of qualitative and quantitative research methodologies as complementary rather than conflicting paradigms.

Recommendations

The study recommended that the Ministry of Health and District Health Officers, through the Mental Health hospital in charge, consider the adoption of the ISCAR model to be used in the treatment facilities and the community Voluntary Health Service team, together with the alcohol recovery group discharged, to discuss the areas of responsibilities and interests in working with the community support team to reduce relapse. Therapists from treatment facilities should work hand in hand with the community health team to provide quality services and encourage the recovering addicts to get work done to keep busy in order to avoid the temptation of relapse.

Therapists should focus on addicts' expectations regarding the effects of alcohol addiction, identify, and challenge the self-defeating behaviours of addiction so that they can help addicts come up with lapse prevention measures, as they primarily focus on identifying high-risk situations for drinking and then building a repertoire of coping skills to live sober.

The study recommended that alcohol addicts need to be helped to develop strategies of managing addiction triggers to have hope and a sense of belonging as a recovery strategy.

Availability of data

Information can be accessed from the following sources:

1. Publication from the students' Journal for Health Research Africa website
2. Nkumba University library
3. Website of Nkumba University
4. University of Kisubi Library and website
5. Seminars
6. Workshops
7. Academic research conference
8. Through radio talk shows on mental health companies

Author's contribution

Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing, and Visualization: Dr. Sr. Lindrio Celestine (PhD)

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List of abbreviations

AA	Alcoholics Anonymous
APA	American Psychology
AUDs	Alcohol Use Disorders
BNRH	Butabika National Referral Hospital
CD	Coefficient of Determination
CFI	Comparative Fit Index
CFI	Comparative Fit Index
CIUREC	Clarke International University Research Ethics Committee
CVHST	Community Voluntary Health Service Team
DHO	District Health Officers

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FR	Factors of Recovery
HPAM	Hypothesized Path Analysis Model
HT	Hypothesis Testing
ISCAR	Integrated Self and Community Awareness Recovery
K.I.I	Key Informants Information
MHH	Mental Health Hospital
MoH	Ministry of Health
NU	Nkumba University
PcI	Pharmacotherapy Intervention
PS	Perceived Sobriety.
PsI	Psychosocial intervention
QDA	Qualitative Data Analysis
QDA	Quantitative Data Analysis
REC	Research Ethical Committee
RI	Recovery Interventions,
RMSEA	Root Mean Squared Error of Approximation
SAMHSA	Substance Abuse and Mental Health Services Administration
SCI	Socio-cultural intervention
SEM	Structural Equation Model
SPSR	School of Postgraduate Studies and Research
SPSS	Software package, such as
SRC	Serenity Rehabilitation Center
SRMSR	Standardized Root Mean Squared Residual
SRMSR	Standardized root mean squared residual
SWOT	Strength Weakness Opportunity and Threat
TLI	Tucker-Lewis's Index
UNCST	Uganda National Council for Science and Technology

Conflict of interest

The study desired to circulate the model developed to all the rehabilitation facilities so that therapists adopt and use it in the facility to support the recovery process of the patients, both for the inpatients and outpatients (after care), to ensure a high level of sobriety among recovering addicts.

The external validity of the study results

This study might contribute to a better understanding of the consequences of perceived sobriety, which results in relapse, and the factors associated with the addiction recovery process, thereby improving the healthy livelihood of addicts in Uganda. All the rehabilitation centres and psychological counselors in Uganda might be encouraged to adopt and apply this newly initiated alcohol addiction recovery intervention model (Integrated Self Community Awareness Recovery (ISCAR) model to address issues related to perceived sobriety to see meaning in life. This would encourage psychological counselor training institutions to revive their skills, techniques, and interventions as they work with clients. Although, (Kalema et al., 2015) reported that bulk of health professionals lack sufficient skill to diagnose and treat individuals with perceived sobriety as well as (Kalema et al., 2017) reported that, patients who relapsed due to perceived sobriety were managed in primary health facilities despite the limited resources for pharmacotherapy and psychosocial interventions, therapists are therefore, urged to offer after care services for recovering addicts to avoid relapse.

The study could influence therapists to gain a better understanding of the nature of addicts so as to empower families and communities to support the individual's use of alcohol in a positive sense of living, keep a responsible sense of self, maintain sobriety or abstinence, or even voluntary seeking rehabilitation or treatment in cases of relapse from alcohol and other alcohol related problems. Although alcohol undermines commitment to achieve number 13 of 17 United Nations Sustainable Development Goals (SDGs) by impacting health-related challenges such as liver cirrhosis, road injuries, as well as economic challenges and social development (WHO, 2018). This would help enablers and co-dependents to receive healing and recovery, as well as the promotion of wellness. This policy would contribute to the achievement of the alcohol-related strategic development goal targeting number 3.4 on the reduction of mortality due to non-communicable diseases by 2030.

The study could also inform the public by publication through articles to create awareness on the dangers of excessive use of alcohol and the challenge of premature discharge from the treatment facilities after the reception of the initial treatment on arrival. This would promote the adoption of the Integrated Self-community Awareness Recovery (ISCAR) model to aid sobriety among addicts belonging to the special populations and underrepresented minorities who have fewer opportunities to participate in research and whose preferences for receiving research findings are unknown.

The study would help to enhance the understanding of recovering addicts about the influence of perceived sobriety, which most people believe is a recovery, but not considering the false part of it, making many caretakers and clients demand premature discharge without exploring the cause of addiction and addressing the unresolved issues or uncertainties of one's life resulting in addictive behaviour. This would help the recovering addicts to face reality by clearly understanding and using this information to inform their decisions about changing health behaviors, interacting with their therapists, health-care providers, sharing their experiences with others, and recommending to others that recovery is possible.

The study findings would reach out to the public through workshops, seminars, and conference presentations to inform resources for use through collaborations with individuals, institutions of learning, and organizations on the benefits of the ISCAR model as people battle with issues of perceived sobriety resulting in relapse.

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Involving community members in the recovery process promotes sobriety, increases transparency, and provides opportunities for learning and helping in understanding the challenge of premature discharge resulting in relapse, which is a problem for most addicts.

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