*-Efficacy of Cognitive-Behavioral Coping-Skills Therapy on Alcohol and Cannabis Users among Kenyan University Students

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Abstract

The rise in drug use and abuse among university students in Kenya and the resultant adverse effects have led to a simultaneous increase in the number of students in need of professional help. This study set out to evaluate the cognitive-behavioral coping skills therapy (CBST) as a treatment intervention. The study aimed at evaluating the efficacy of CBST among students using drugs and their academic achievements. A quasi-experimental design was employed on a sample of 78 respondents from Daystar University, Athi River campus. Respondent-driven sampling technique was used to select the sample. The respondents were assessed using various psychological tools and only those who met the Alcohol, Smoking and Substance Involvement Screening and Test (ASSIST) criteria of moderate and high risk in their alcohol and cannabis use were included in the study. CBST was applied on the respondents and two post assessments were done after the intervention. The data was analyzed using inferential statistics that included t-tests, ANOVA, chi square, linear and logistic regressions. Treating university students who used drugs with CBST resulted in observable change in behavior, which indicated that CBST was effective.

Key words: intervention, academic achievement, assessment, moderate risk, high risk, change in behavior

Introduction and background

Drug and alcohol use is a great health concern among university students aged 18-24 years (Ham & Hope, 2003). Alcohol and cannabis use and abuse have been found to be the most prevalent form of drug abuse among undergraduate students (Dammann et al., 2014; Hynes, Demarco, Araneda, & Cumsille, 2015; Tse, 2011). Globally, university students are shown to be among the most affected populations by alcohol abuse (Advisory Council on the Misuse of Drugs, 2006). Students with drinking problems also appear to pose considerable concern in universities in the world (LaBrie, Pedersen, Lamb, & Quinlan, 2007). Prevalence of alcohol consumption among students has been reported at 80% in US, 88% in Europe, and 40% in China (Tse, 2011). In Nigeria, the prevalence of alcohol use among university students was found to be 78.4% (Chikere & Mayowa, 2011). Similarly, the prevalence of alcohol use among students in Ethiopia

was 19.2-31.2%; Tanzania was 30.3% and Uganda was 41.1% (Francis, Grosskurth, Changalucha, Kapiga, & Weiss, 2014). Different prevalence studies of alcohol use among Kenyan university students have also reported a range of 44.8%-63.2% (Atwoli, Mungla, Ndung'u, Kinoti, & Ogot, 2011; Daystar University, 2011; Hassan, 2013).

When it comes to cannabis use, a similar scenario is replicated among the youth in different parts of the world. The prevalence rate of cannabis use in Canada among young people aged 15-24 years was reported to be at 25-36% and 25% among college students in USA (Fischer, Jones, Shuper, & Rehm, 2012; See, 2010). Africa is rated third in cannabis use prevalence in the world due to its high production of the drug (United Nations Office of Drugs and Crime {UNODC}, 2012). In East Africa, the alcohol use and abuse prevalence rate is followed closely by that of cannabis use (Kasirye, n.d.). According to the National Agency for the Campaign against Drug Abuse (NACADA, 2014), cannabis use prevalence is at 1.2% countrywide and young people are identified as the greatest consumers of it. Thereis a knowledge gap in the area of intervention on drugs locally (NACADA, 2010, 2011). Thus, this research was carried out to fill that gap by coming up with an effective treatment program for alcohol and cannabis use among students.

The current study applied the Cognitive-Behavioral Coping-Skills Therapy (CBST), which is one of the models under Cognitive-Behavioral Therapy (CBT). This approach was selected due to its demonstrated effectiveness in reducing alcohol and other drug use as well as decreasing negative consequences in the target group (Larmer & Cronce, 2007; National Institute on Alcohol Abuse and Alcoholism, 2005; Substance Abuse Mental Health Services Administration, 1999). CBST views drug use or abuse as a learned behavior that comes as a result of experience and is based on the principles of social cognitive theory. The proponents of CBST argued that the inability to cope with life's stresses could lead to maladjusted behaviors like alcohol and drug abuse as a coping mechanism (Longabaugh & Morgenstern, 1999).

CBST was therefore developed to assist alcohol and drug users to improve their cognitive and behavioral skills to enable them change maladaptive behaviors of alcohol and drug use. The model uses coping skills training to help alcohol and drug users learn adequate coping skills in order to become better in adaptive behaviors. The coping skills enable alcohol and drug users to have a better way of dealing with triggers that make them use drugs. Users are first assisted to identify the triggers preceding drug use. They are then taught alternative coping skills and given

a chance to practice them adequately and also as homework assignments so that they can be in a position to apply them easily whenever the need arises (Kadden, 2001; Longabaugh & Morgenstern, 1999).

Methodology

The population of the study was obtained from Daystar University in Kenya that was purposely selected. This study used quasi-experimental design, with pre and posttest, which involved the application of CBST to students found to be using drugs in the selected university. The university has two campuses, one in Nairobi City and the other in Athi River, Machakos County. The study was carried out in the Athi River campus because it had more students with drug-related problems than the Nairobi campus. Post-hoc power calculations was conducted using the G*power program to calculate the sample size for the study. A sample of 78 was obtained using respondent-driven sampling technique that targeted students using alcohol or cannabis. Nairobi Hospital Ethics Board gave the ethical approval, and the permit to carry out the research was obtained from the National Council for Science, Technology and Innovation (NACOSTI).

As earlier indicated, respondent-driven sampling (RDS) technique was used to get the participants of this study. RDS has been shown to be effective in tracing hidden participants like drug users (McCreesh et al., 2012). The researcher first identified one respondent in Athi River campus, who was using alcohol or cannabis, and through networking sampling technique, a sample of 134 respondents was recruited. Out of this number, 95 agreed to participate in the study while 39 declined due to fear of being found out by the University administration, even after being assured confidentiality and anonymity. After the baseline assessment, out of the 95 students who agreed to participate, 78 qualified while 17 did not, in accordance with ASSIST criteria of medium and high risk on either alcohol or cannabis use.

Self-administered tools were used to collect the data for the study. These included a socio-demographic questionnaire. ASSIST was administered to detect drug use (WHO, 2008). On alcohol, an individual with a score of 0-10 is at low risk; 11-26 is at moderate risk while 27 and above is at high risk. For all the other substances, a score of 0-3 is at low risk, 4-26 is at moderate risk, and 27 and above is at high risk of dependence. ASSIST has been adapted and used in Kenya with different studies that reported good reliability and validity (Kuria et al.,

2012; Muriungi & Ndetei, 2013; Muriungi, Ndetei, Karanja, & Matheka, 2013; Ndetei et al., 2009). The Alcohol Use Disorders Identification Test (AUDIT) administered helped to identify those with harmful use of alcohol (WHO, 2001). A score of 8 and above on AUDIT indicates harmful alcohol use. AUDIT was adapted and used with the Kenyan population, with results that showed good reliability and validity (Chersich, Bosire, King'ola, Temmerman, & Luchters, 2014; Kuria et al., 2012; Ndetei et al., 2009).

The data was analysed using various statistical tests. For descriptive analysis, all variables were described and results presented in percentages, frequency tables, means, standard deviation and narratives. Inferential statistics was also carried out where t-test, ANOVA, chi square, linear and logistic regressions were performed. This was used to test the association between variables and also the efficacy of treatment while controlling for effect modifiers. Effective size of the treatment model was also tested. The patterns of relationship found to exist was used in the interpretation of the data.

The study group assessment results were compared at baseline, midline and endline using independent t-test and paired t-test. These assessments involved correlations within the group, in terms of levels of involvement with the substances during the treatment period. This was to check when the actual effect of the intervention occurred. Binary logistic regression was used to determine the association between the intervention and significant symptom reduction in continuous outcome variables. Similarly, binary logistic regression helped to determine the association between the intervention and stopping to engage in harmful alcohol use (categorical outcome variable). In addition, continuous and categorical variables were used in assessing the diagnosis of substance use, which was one of the outcome variables.

The efficacy of the intervention among respondents was also tested. High scores on ASSIST indicated risk levels of alcohol and cannabis use, high score on AUDIT indicated harmful use of alcohol, and midline and endline assessments low scores in these two instruments revealed effective response to the intervention.

Results

These are the socio-demographic characteristics of the 78 respondents at baseline. Gender distribution between males and females was in the ratio of 1:1. This shows that the proportion of

males and females was equal. A high proportion of participants using drugs was aged 21-22 years (44.9%). More than two-thirds (79.5%) of the participants were in their second (30.8%) and third years (48.7%) of study, respectively. This finding indicates that a high number of the respondents found using drugs were in second and third years of their university studies. This means that they are the group most affected by drug use. Additionally, a relatively high proportion of the participants (57.7%) resided in off-campus hostels, showing that many students prefer to stay in the off-campus hostels where there is more freedom to try out different things. A majority of the participants (83.3%) indicated that their parents were married.

Analysis of respondents' social environment was done. Slightly more than half of the respondents (51.3%) reported to have seen their fathers use alcohol, while 92.3% had not seen their fathers use other drugs. The majority of the respondents indicated not to have seen their mothers use alcohol (69.3%) or other drugs of abuse (96.4%). The majority of the respondents had close friends who used alcohol (88.6%), would go to parties where alcohol was easily accessible (82.1%), and had close friends using other drugs (75.0%). More than half of the respondents (62.9%) reported that the drug(s) they used were easily accessible. These findings show that having seen fathers use alcohol, having friends who used alcohol and other drugs, and also easy accessibility to drugs influenced respondents' use of drugs.

In relation to media influence on respondents' drug use debut, the most common form of media influence was TV (36.4%), followed by celebrities in the media (20.0%). Other specific forms of media influence accounted for less than 10.0%. The most common substances used by the respondents included beer products (76.4%), wines (68.6%), cannabis (57.1%), and tobacco products (53.6%). Other specific substances accounted for less than 25.0%.

The mean, standard deviation and range of alcohol and cannabis use scores of the participants at baseline was done. Overall, the mean alcohol use score was 25.9 ($\pm$18.1 SD), which ranged between 0 and 109. This was an indication that the respondents' mean alcohol use was bordering on high risk. In addition, the mean cannabis use score was 8.9 ($\pm$ 10.2 SD), which ranged between 0 and 38. This finding suggests that the respondents' mean cannabis use was at moderate risk.

Analysis of risk levels of alcohol and cannabis using ASSIST and AUDIT scores at baseline was done. Those at moderate risk of alcohol use according to ASSIST were the majority (50.0%), followed by high risk (35.9%), and low risk had 14.1%. According to this finding, most of the respondents were using alcohol in moderate and high risk ways. The AUDIT scores indicated that those at moderate risk were the majority (43.6%), followed by low risk (35.9%), and high risk accounted for 20.5%. This finding seems to suggest that more than half of the respondents were using alcohol in harmful ways at moderate and high risks. On examining cannabis risk use according to ASSIST, the respondents found with low risk were 47.4%, followed by moderate risk at 46.2%, and those with high risk were 6.4%. This finding indicates that slightly more than half of the respondents were using cannabis in moderate and high risk ways.

Effect of the Intervention on Substance Use and Academic Performance

Table 1 presents the analysis of the mean alcohol use score within the study group at baseline, midline, and endline. The comparison reveals that the mean alcohol use score at baseline (23.44 ± 15.36) was comparable to that of midline (23.22 ± 16.46; p=0.917) but significantly higher compared to that of endline (16.71 ± 12.30; p=0.002). There was a slight difference of 0.22 score points from baseline to midline and 6.73 score points from baseline to endline. This appears to be indicative of the progressive way in which the treatment worked from the time the respondents began to when the last assessment was carried out (3 months after the end of the intervention). Therefore, this finding demonstrates the effectiveness of the intervention in reducing alcohol use at endline (p=0.002). This shows that the effects of the intervention continued to influence the participants even after the end of the intervention.

Table 1: Mean Alcohol Use of Respondents at Baseline, Midline, and Endline

Time point	N	Mean	SD
Baseline (pre-intervention)	62	23.44	15.36
Midline (post-intervention)	62	23.22	16.46
p value: Baseline vs. Midline		0.917	
Endline (post-intervention)	62	16.71	12.3
p value: Baseline vs. Endline		0.002	

Analysis of harmful alcohol use at baseline, midline and endline assessments were done, as presented in Table 2. The analysis comparison reveals that harmful alcohol use at baseline

(64.5%) was significantly high compared to that of midline (35.5%; p=0.001) and that of endline (30.6%; p<0.001). Analysis of percent changes in harmful alcohol use between the baseline and midline reveals that there were significant changes (p=0.001). Similarly, with regard to percent of changes in harmful alcohol use between baseline and endline, there were more significant changes (p<0.001). Therefore, reduction of harmful alcohol use was significant both at midline and endline, which was an indication that the effects of the intervention were maintained post intervention.

Table 2: Harmful Alcohol Use at Baseline, Midline and Endline Assessments

Variables	(n=62)
Harmful alcohol use: Baseline (pre-intervention)	64.5%
Harmful alcohol use: Midline (post-intervention)	35.5%
p value: Baseline vs. Midline	0.001
Harmful alcohol use: Endline (post-intervention)	30.6%
p value: Baseline vs. Endline	<0.001

Effect of the Intervention on Cannabis Use

Table 3 presents the analysis of mean cannabis use score among the respondents at baseline, midline, and endline. The mean cannabis use score at baseline (8.24±9.22) was comparable to that of midline (8.98±9.89) but significantly higher compared to that of endline (5.55±7.52). There was a slight difference of -0.74 score points from baseline to midline and 2.69 score points from baseline to endline. This shows that immediately after treatment, the respondents slightly increased in their cannabis intake. However, it seemed that the increase did not last long because by the last assessment, three months from when the treatment ended, there were significant changes that took place, hence the significant difference at the endline assessment (p=0.002). This could be an indication that the intervention was most effective in significant symptoms reduction of cannabis use at endline. This demonstrates that the effects of the intervention continued to influence the participants even after the end of the intervention.

Table 3: Cannabis Use Scores of Respondents at Baseline, Midline, and Endline

Time point	n	Mean	SD
Baseline (pre-intervention)	62	8.24	9.22
Midline (post-intervention)	62	8.98	9.98
p value: Baseline vs. Midline		0.423	

Endline (post-intervention)	62	5.55	7.52
p value: Baseline vs. Endline		0.002	

Effect of the Intervention on Academic Performance

Table 4: School Performance Scores among Respondents at Baseline, Midline, and Endline

Time point	N	Mean	SD
Baseline (pre-intervention)	62	2.61	0.63
Midline (post-intervention)	62	2.85	0.58
p value: Baseline vs. Midline		<0.001	
Endline (post-intervention)	62	2.75	0.52
p value: Baseline vs. Endline		0.083	

Discussion

This research aimed at evaluating the effectiveness of CBST among students actively involved in alcohol and cannabis use and abuse in Daystar University. The therapy was applied to the respondents for a period of nine weeks. Assessment of symptom reduction followed in the tenth week. Another assessment (endline) was carried out three months after the end of the intervention to see whether the intervention would be efficacious beyond the treatment period. It was interesting to note that there was no significant symptoms change on alcohol and cannabis use immediately after the treatment. This implies that the respondents did not change immediately after the intervention, possibly because they were still trying to gain the ability to regulate themselves, or were internalizing the social skills necessary to deal with their drug use problem, and the capacity to apply self-control over their drug use (Bandura, 1994).

Nevertheless, the case was different for the harmful alcohol use where there was significant symptom reduction at midline. This could have been due to the self-awareness and insight that was created among the respondents of the dangers of harmful alcohol use, which could have influenced them to reduce their harmful use. There was also a lot of encouragement and support given to the respondents as they struggled to reduce harmful alcohol use, which could have influenced the change that occurred immediately after the intervention (Lach, Everard,

Highstein, & Brownson, 2004; Prochaska, Norcross, & DiClemente, 2013; Prochaska, Redding, & Evers, 2008)

Additionally, there were significant changes with all the substances after the endline assessment, implying that the respondents had taken the action of changing their substance use behaviors and were working hard to maintain the desired behavior they had attained in the process of change (Prochaska et al., 2013). This was an indication that the respondents had developed social and self-regulation skills that placed them in a better position to deal with their drug use problem. In addition to skills improvement, the respondents acquired social support among themselves in order to sustain the desired change in their lives (Bandura, 1994).

Therefore, there was significant symptom reduction of alcohol, cannabis, and harmful alcohol use at midline and endline as compared to the baseline. All these are indicators that CBST was effective in reducing these symptoms among the respondents. This finding is consistent with what has been reported concerning CBST, basically that it is one of the most effective interventions for substance use treatment (Longabaugh & Morgenstern, 1999).

In relation to alcohol and other drugs treatment, CBST has been demonstrated to be effective in the West for over 25 years (Larmer & Cronce, 2007; NIAAA, 2005; SAMHSA, 1999). CBT from which CBST originated has also been effective in helping young people to cope better in reducing their drug use (Kowalski et al., 2012; Niknejad & Farnam, 2015). The respondents in this study were trained on cognitive and behavioral skills during the intervention, which assisted them to learn adequate coping skills. This resulted in significant symptoms reduction in alcohol and cannabis use and abuse, suggesting that CBST was effective in helping students using and abusing alcohol and cannabis.

Moreover, this study has demonstrated that the intervention was effective in enabling the participants to improve their academic performance. As the students reduced their drug use, they were able to focus more on their academic work, resulting in the improvement of academic performance (Ebenuwa-Okoh, 2010). This may suggest that CBST could be effective in assisting students reporting drug use and abuse improve their academic performance.

There were several limitations that we anticipated while carrying out this research. First, was the unwillingness of some of the respondents to be involved in the study due to fear of being

discovered by the university administration. To deal with this limitation, we assured the respondents of confidentiality and anonymity of their identities and also that the university management would not be privy to their identities.

The researcher acknowledged that having the students complete the questionnaire at their own time and return it later could result in some not completing them before returning them. To address this limitation, the researcher had research assistants who ensured completion and timely return of the questionnaire.

Conclusion

The evaluation of CBST seemed to indicate variation in efficacy between pre-intervention (baseline) and post-intervention (midline and endline) assessments. Therefore, it can be concluded that CBST was efficacious since there were significant changes that occurred among the respondents that were attributed to the intervention.

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