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Efficacy of Mi Therapy on Aud Among Students in Mount Kenya University, Nairobi.

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Abstract:

Studies all over the world show that, there is a struggle with the issue of students' alcohol use resulting in alcohol use disorder (AUD) in many universities, a problem that causes considerable medical and social problems. In this regard therefore, prevention and management of the challenge (alcohol use) are of significant concern. A quasi-experimental study to establish the efficacy of Motivational Interviewing (MI) therapy in reducing AUD among Mount Kenya University (MKU) students was done. In order to collect the required data, a sample of 105 respondents, aged 18-26 years, was selected through stratified purposeful sampling in two Mount Kenya University Campuses namely, Nairobi and Nakuru. To assess for the efficacy of MI, a social-demographic questionnaire was used to capture respondents' demographic information, a Beck's Depression Inventory (BDI) to screen for depression, a Beck's Anxiety Inventory (BAI) to screen for anxiety, and an AUD Identification Test (AUDIT) to screen for AUD. Screening was done at baseline, midline, and end line and MI therapy administered to the respondents. The data was collected from Nairobi (experimental) and Nakuru (control) Campuses and analysed using the Statistical Package for the Social Sciences (SPSS), version 23. The results indicated that MI therapy was efficacious in reducing symptoms of AUD among the respondents (p=0.0001). Recommendations were made for stakeholders to arrange for strategic therapeutic activities for different groups of students and especially those that are almost graduating from University.

Keywords: Alcohol use disorder, Control, Experimental, Efficacy, Mount Kenya University, MI Therapy, Symptoms.

Introduction and Background

Word Health Organization records that, alcohol is among the psychoactive substances with dependence producing properties. Its harmful use is among the highest threats for illnesses, disability, and death worldwide (WHO, 2014). Excessive use of alcohol which results in Alcohol Use Disorder, has been globally captured in literature. Reports have indicated that 76.3 million people suffered from alcohol use disorder (AUD) worldwide because of excessive alcohol consumption (NICE, 2011). AUD has also been linked with disease, mental health issues, disability, and death; as well as with negative social-economic outcomes. The combination of AUD and associated problems increases the severity and complicates the effects of diagnoses, causing difficulties in the treatment of clients. In this regard, Westra, Aviram, and Doell (2011) argued that an effective intervention is required to manage the challenge of alcohol misuse, as well as boost treatment among users. Although there has been considerable research conducted over time, the area of intervention seems not to have been thoroughly explored especially in the developing countries (Kumar, O'Malley, Johnston, Schulenberg, & Bachman, 2002). This means that the importance of coming up with intervention measures and effective treatment models to deal with alcohol abuse among university students cannot be overlooked. Students would need to resolve their alcohol use problems fast enough in order to proceed with their academic work and complete their studies on time. According to Miller and Rollnick (2013), motivational interviewing (MI) is a counseling method that assists clients to address uncertainty and find inspiration towards behavioral transformation (Substance Abuse and Mental Health Services Administration [SAMHSA], 1999). It is a directive, short-term therapy that is empathetic, and since it combines with genuineness, it assists the client to experience positive change. MI "builds on Carl Rogers' optimistic and humanistic theories about people's capabilities for exercising free choice and changing through a process of self-actualization" (SAMHSA, 1999, p. 39). During its inception, the MI therapy was developed as an empathetic, non-argumentative counselling style that develops discrepancy in a client in order to motivate change. The intervention is widely recognized and supported for treating of AUDs (Miller & Rollnick, 2013). The counsellor attempts to understand the client's perspective, makes clear the connection between existing behaviour and aspiration and encourages self-efficacy towards boosting motivation for change (Miller & Rollnick, 2013). MI is highly advocated as a component of the overall treatment for individuals experiencing alcohol use disorders. Miller and Rollnick (2013) maintained that MI is based on five motivational principles that underpin its skills, namely expression of empathy, developing discrepancy, supporting self-efficacy, avoiding argumentation and direct confrontation, and rolling with client's resistance. The MI works with the assumption that human beings express fluctuating desires for change, often fluctuating between the level of motivation and ambivalence (Arkowitz & Miller, 2008). In MI, clients are allowed to express their ambivalence as a way of guiding themselves until they resolve their conflicting motivations and facilitating the desired behavioural changes (Labrie et al., 2007). Any attempt to coerce the client to change would be ineffective since it is perceived as taking a side of the conflict that the client is already experiencing (Cronce &

Larimer, 2011). The MI counsellors need to aim at increasing the client's inner motives to change, which is enhanced by his or her (client) own goals and values. The therapy works on assisting clients in deciding to make changes without any external pressure (Arkowitz & Miller, 2008). Clients are expected to be responsible regarding making personal decisions to change, and even the methods by which they undertake the change. This is important because the responsibility for change has to be solely the client's. The MI's intention is that the client can personally be responsible for arguing for change by eliciting change talk and self-motivating statements. Such involves clear declarations by the clients, which demonstrate that they recognize their need for change, concern for their current position, intention to change, and the belief that change is possible (Miller & Rollnick, 2002). Notably, a good relationship exists between what people say they will achieve and what they actually achieve (Raistrick, 2007); hence the self-motivating statements. The MI counsellor's role in this process is to help clients clarify their motivations for change; provide information and support; and offer alternative perspectives on the current problem behaviours and potential methods for changing these behaviours (Miller & Rollnick, 2002). According to Rollnick, Miller, and Butler (2008), MI operates as a collaboration between the client and the therapist. It addresses the problem behaviour in which change is intended: providing a more specific client goal than the client-centred method, which is a broad approach in the consultation. MI involves an active and joint decision-making process between the therapist and the client (Rollnick et al., 2008). Reports have maintained that MI counsellors look forward to arousing clients' motivation and internal resources for change, instead of just giving them what they might lack (Rollnick et al., 2008). The counsellors achieve this by connecting behaviour change with clients' values and concerns, and this requires that the clients understand their own perspective, by evoking their own arguments and reasons for change (Rollnick et al., 2008). Additionally, Rollnick et al. (2008) argued that some degree of clinical detachment from outcomes is needed when therapists are practicing MI therapy. This detachment does not mean an absence of caring; it is rather an acceptance that clients can make choices which may not result in the desired health improvements. It is important to recognize that, although sometimes the counsellor may give advice, the client needs to decide on their plan of action. In order to facilitate behaviour change, the counsellor is expected to recognize and honour the client's autonomy (Rollnick et al., 2008). The MI therapy was for the first time applied as an intervention to cure alcohol and drug users (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010; Miller & Rollnick, 2013). The therapy has subsequently been applied in supporting persons to handle chronic diseases, as well as other health problems. Lindgren et al. (2010) used MI as a tool in a worksite program to help employees manage chronic illnesses and found that interventions using MI helped employees increase self-efficacy and motivation, along with other characteristics associated with the therapy.

Methodology

The study adopted a quasi-experimental research design which is a type of experimental study design (Creswell, 2015). This design is favoured for a study that seeks to establish change as an outcome of the intervention, especially in psychological researches.
Quasi-experimental designs identify two groups with similar characteristics at baseline. The groups are the experimental and the control which, in this study were Nairobi Campus and Nakuru campus, respectively. The control group is not given treatment and therefore captures the outcomes if no intervention is applied. In this study, the design assisted in helping to assess the efficacy of MI therapy on AUD among students in MKU, Nairobi Campus. The design was appropriate for answering research questions about the efficacy of MI as an intervention for reducing alcohol use among students.
Data was obtained from the undergraduate students who were exposed to the psychological assessment instruments such as the AUDIT which measured the severity of alcohol use. The study involved an initial pre-assessment at baseline followed by two assessments at the midline after two months and at end line two months later. In this study, the quantitative data collected created a platform for comparing the results of one group with another. The advantage of quantitative data collection is that numbers captured were subjected to computerised arithmetic procedures that provide ways of dealing with large data sets. This method also allowed for the use of statistical techniques that permit research hypotheses to be rigorously tested (Dermen, Ciancio, & Fabiano, 2014).
According to Bogopane, (2013), the researcher selects the subjects who would be used to gather the information representing the target population under consideration after the sampling procedure. For the current study the sample size was 125 participants, where 63 were in the experimental group (Nairobi campus), and 62 (Nakuru campus) in the control group. However, after the recruitment, 20 participants withdrew, and only 105 participants remained and took part in the actual study.

Results

Efficacy of MI Therapy on AUD among Students in MKU
Table 4.20 captures the descriptive analysis of socio-demographic distributions and AUDIT scores at baseline.

Table 4.20: Participants' AUDIT Scores at Baseline (Bivariate Analysis)

		Participant's scores on AUDIT at baseline				Chi-Square Test		
Variable	Total	0-7 Low Risk	8-15 Moderate Risk	16-19 High Risk Harmful	20+ Dependent Level	Value	df	SSig.
Participant's Gender								

Male	62 (59.6)	40 (38.5)	12 (11.5)	5 (4.8)	5 (4.8)	.496	1	.139
Female	42 (40.4)	30 (28.8)	11 (10.6)	0 (0.0)	1 (1.0)			
Participant's Age								
18-20	18 (17.3)	11 (10.6)	4 (3.8)	1 (1.0)	2 (1.9)	4.091	2	.664
21-23	59 (56.7)	41 (39.4)	11 (10.6)	4 (3.8)	3 (2.9)			
24-26	27 (26.0)	18 (17.3)	8 (7.7)	0 (0.0)	1 (1.0)			
Participant's Year of Study								
1st Year	23 (21.9)	13 (12.4)	5 (4.8)	2 (1.9)	3 (2.9)	.250	3	.415
2nd Year	31 (29.5)	24 (22.9)	4 (3.8)	2 (1.9)	1 (1.0)			
3rd Year	21 (20.0)	16 (15.2)	4 (3.8)	0 (0.0)	1 (1.0)			
4th Year	30 (28.6)	18 (17.1)	10 (9.5)	1 (1.0)	1 (1.0)			
Participant's Mode of Study								
Regular/Day	95 (90.5)	64 (61.0)	21 (20.0)	4 (3.8)	6 (5.7)	.296	1	.730
Evening	10 (9.5)	7 (6.7)	2 (1.9)	1 (1.0)	0 (0.0)			
Participant's Marital Status								
Single but dating	4 (4.1)	3 (3.1)	0 (0.0)	1 (1.0)	0 (0.0)	.371	2	.497
Single but not in relationship	87 (88.8)	57 (58.2)	20 (20.4)	4 (4.1)	6 (6.1)			
Married	7 (7.1)	5 (5.1)	2 (2.0)	0 (0.0)	0 (0.0)			
Participant's Place of Residence								
On-campus Hostels	14 (14.7)	10 (10.5)	3 (3.2)	1 (1.1)	0 (0.0)	.793	2	.705
Off-campus	34 (35.8)	23 (24.2)	5 (5.3)	2 (2.1)	4 (4.2)			
Living with family members	47 (49.5)	32 (33.7)	11 (11.6)	2 (2.1)	2 (2.1)			
Who Pays Participant's Fees?								
Parents/family members	84 (82.4)	56 (54.9)	18 (17.6)	4 (3.9)	6 (5.9)	.725	2	.943
Scholarship	4 (3.9)	3 (2.9)	1 (1.0)	0 (0.0)	0 (0.0)			
Self-Sponsored	14 (13.7)	10 (9.8)	3 (2.9)	0 (0.0)	0 (0.0)			
Participant having sibling(s) in the university								
Yes	36 (35.0)	24 (23.3)	7 (6.8)	3 (2.9)	2 (1.9)	.594	1	.661
No	67 (65.0)	45 (43.7)	16 (15.5)	2 (1.9)	4 (3.9)			
Marital Status of Participant's Parents								
Married	71 (69.6)	47 (46.1)	15 (14.7)	3 (2.9)	6 (5.9)	.035	4	.855
Separated	4 (3.9)	4 (3.9)	0 (0.0)	0 (0.0)	0 (0.0)			
Single Parents	14 (13.7)	10 (9.8)	3 (2.9)	1 (1.0)	0 (0.0)			
Widow	11 (10.8)	7 (6.9)	4 (3.9)	0 (0.0)	0 (0.0)			
Widower	2 (2.0)	1 (1.0)	1 (1.0)	0 (0.0)	0 (0.0)			
Participant's father's Occupation								
Professional	5 (5.7)	4 (4.5)	0 (0.0)	1 (1.1)	0 (0.0)	3.563	5	.559
Civil servant	18 (20.5)	12 (13.6)	5 (5.7)	1 (1.1)	0 (0.0)			
Self-employed /Business	51 (58.0)	36 (40.9)	9 (10.2)	1 (1.1)	5 (5.7)			
Jobless	9 (10.2)	6 (6.8)	2 (2.3)	0 (0.0)	1 (1.1)			
Retiree	4 (4.5)	3 (3.4)	1 (1.1)	0 (0.0)	0 (0.0)			
Clergy	1 (1.1)	0 (0.0)	1 (1.1)	0 (0.0)	0 (0.0)			
Participant's Mother's Occupation								
Professional	1 (1.0)	0 (0.0)	0 (0.0)	1 (1.0)	0 (0.0)	9.077	4	.000
Civil servant	19 (19.6)	13 (13.4)	4 (4.1)	1 (1.0)	1 (1.0)			
Self-employed/ Business	68 (70.1)	48 (49.5)	16 (16.5)	2 (2.1)	2 (2.1)			
Jobless	8 (8.2)	4 (4.1)	1 (1.0)	0 (0.0)	3 (3.1)			
Clergy	1 (1.0)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)			

Among the gender characteristics, male participants scored higher (at 38.5%) on low risk in alcohol use compared to moderate risk (at 11.5%), high risk (at 4.8%), and dependent level (at 4.8%). Similarly, female participants scored higher (at 28.8%) on low risk compared to moderate risk at (10.6%) and dependent level (at 1.0%). One participant did not indicate their gender. Chi-square test indicated that the distribution of participants' scores on AUDIT among gender distribution was insignificant (p=0.139).

In terms of participants' age, the frequency of the participants who scored higher on moderate risk to alcohol use among those aged 21-23 years was 10.6%, compared to those aged 24-26 years (7.7%), and finally those aged 18-20 (3.8%). Chi-square statistics indicated that there was no significant difference in the distribution of participants' age and alcohol use among the participants at baseline (p=0.664). Additionally, the frequency of participants' year of study and AUDIT scores at least on moderate risk to alcohol use showed that the 4th year participants scored higher (9.5%) as opposed to the 3rd years (3.8%), 2nd years (3.8%), and 1st years (4.8%). The distribution of the participants' year of study and AUDIT scores at baseline was insignificant (p=0.415).

The distribution of other socio-demographic characteristics and AUDIT scores at baseline were insignificant (Ps>0.005) as shown in Table 4.20. However, in terms of participant's mother's occupation, the frequency of the participant whose mother's occupation was self-employed/business scored higher on moderate risk to alcohol (16.5%) compared to those whose mother was a civil servant (4.1%), and jobless (1.0). Chi-square test showed that there was a significant difference in the distribution of a participant's mother's occupation and AUDIT scores at baseline (p=0.0001). This implies that a participant's mother's occupation played a confounder's role in the distribution of participant's socio-demographic characteristics and alcohol use at baseline.

Table 4.21 presents the Principal Components Analysis (PCA)'s symptoms reduction of AUD among the participants from baseline to midline and to end line.

Table 4.21: Symptoms Reduction Mean Estimates (Principal Components Analysis (PCA)

					KMO and Bartlett's Test		
Group	Time	Mean	Std. Dev	Std. Error	P value	df	Sig
Experimental	Baseline	1.5000	.83121	.11108	55.529	2	.000
	Midline	1.1071	.31209	.04171.			
	End line	1.0714	.25987	.03473			
Control	Baseline	1.4694	.84415	.12059	205.771	2	.073
	Midline	1.3878	.70167	.10024			
	End line	1.3673	.72726	.10389			
Total	Baseline	1.4857	.83337				
	Midline	1.2381	.54638				
	End line	1.2095	.54939				

The analysis explored mean estimates of AUDIT scores for the experimental and control groups at baseline, midline, and end line. PCA is a variable reduction technique that shares many similarities to the exploration factor analysis. Its aim is to reduce a larger set of variables into a smaller set of artificial variables called principal components, which account for most of the variance in the original variables. In this study, PCA showed a noticeable reduction in alcohol use mean across the assessment time among the participants in the experimental group. This was seen from baseline to midline and from midline to end line among the participants. Concerning the control group, the reduction in alcohol use among the participants from baseline to midline and from midline to end line was minimal. At the experimental group, the mean of AUD among participants treated with motivation interview therapy (MIT) at baseline was 1.5000 with a standard deviation of .83121. At midline, after treatment with MIT, the mean reduced to 1.1071 with a standard deviation of .31209, and at end line assessment, the mean alcohol use reduced to 1.0714 with a standard deviation of .25987. The KMO and Bartlett's Test of effectiveness indicated that the reduction in mean was because the intervention was significant (p=0.0001). Likewise, at the control group, the mean AUD among participants at baseline was 1.4694 with a standard deviation of .84415. There was no treatment among participants in the control group, yet, the mean alcohol use reduced at midline to 1.3878 with a standard deviation of .70167, and at end line to 1.3673 with a standard deviation of .72726. The KMO and Bartlett's Test of effectiveness indicated that the reduction in mean in the control group was insignificant (p=0.073).

Figure 4.3 presents the mean AUD at baseline across the research groups.

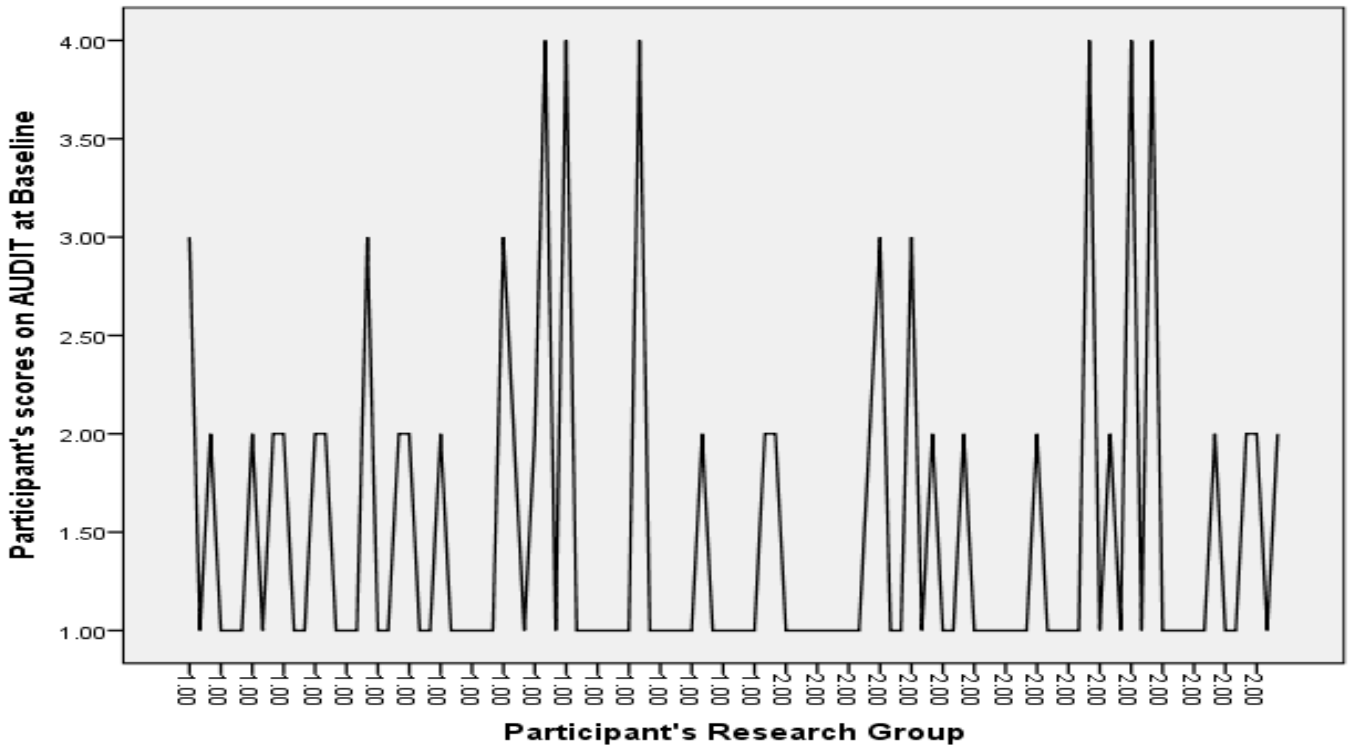

Figure 4.3: Frequency of Participant's Scores at Baseline (Sequence Plot)

Figure 4.4 presents the mean AUD at baseline across the research groups. Item 1 represents the experimental group while item 2 represents the control group.

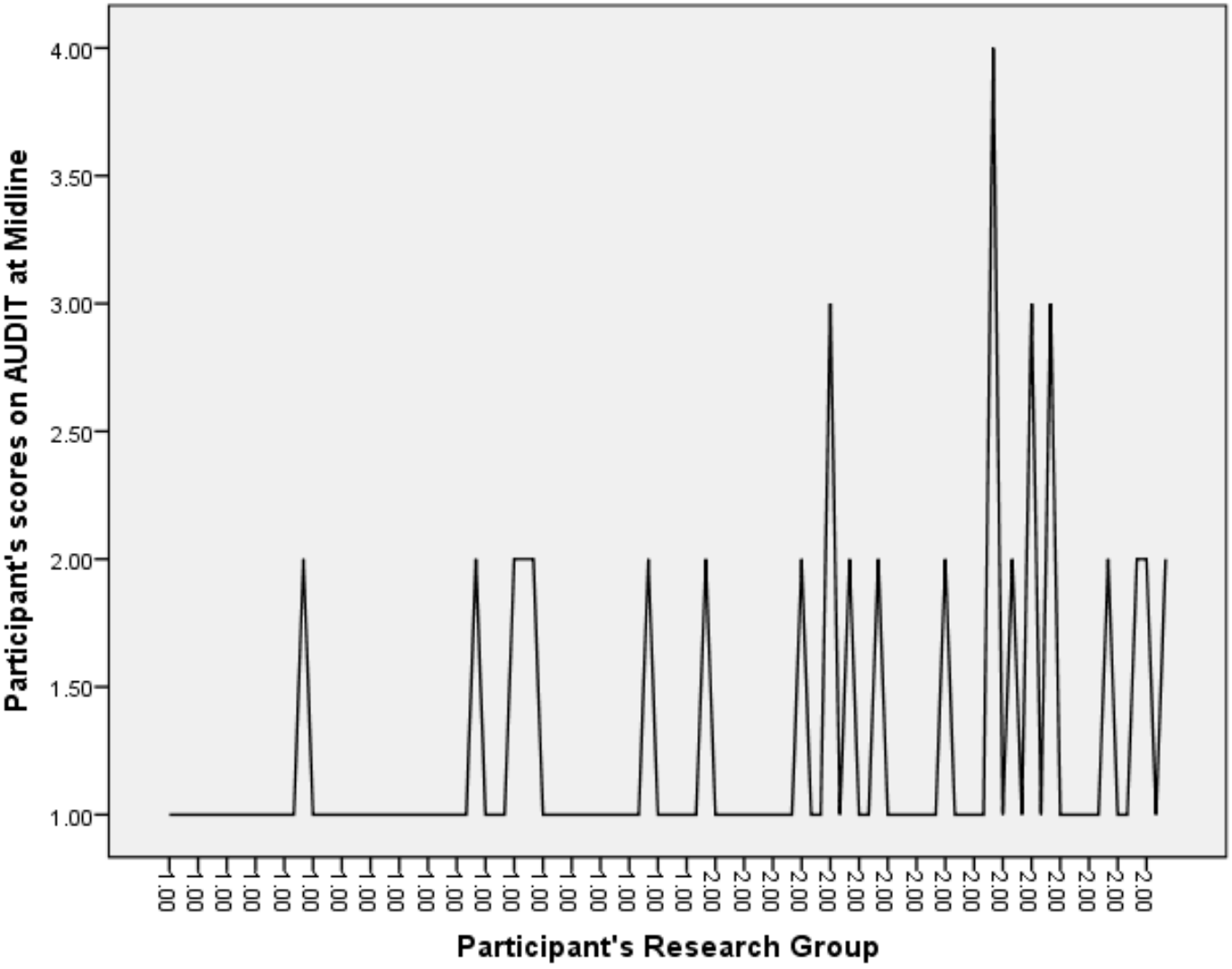

Figure 4.4: Frequency of Participant's Scores at Midline (Sequence Plot)

Item 1 represents the experimental group while item 2 represents the control group.

In the same way, as presented in Figure 4.3, Figure 4.4 demonstrates the mean AUD at midline across the research groups. A noticeable decline in mean was seen at Item 1 (experimental) as opposed to the reduction in mean at Item 2 (control).

Figure 4. 5 depicts the mean AUD at end line across the research groups

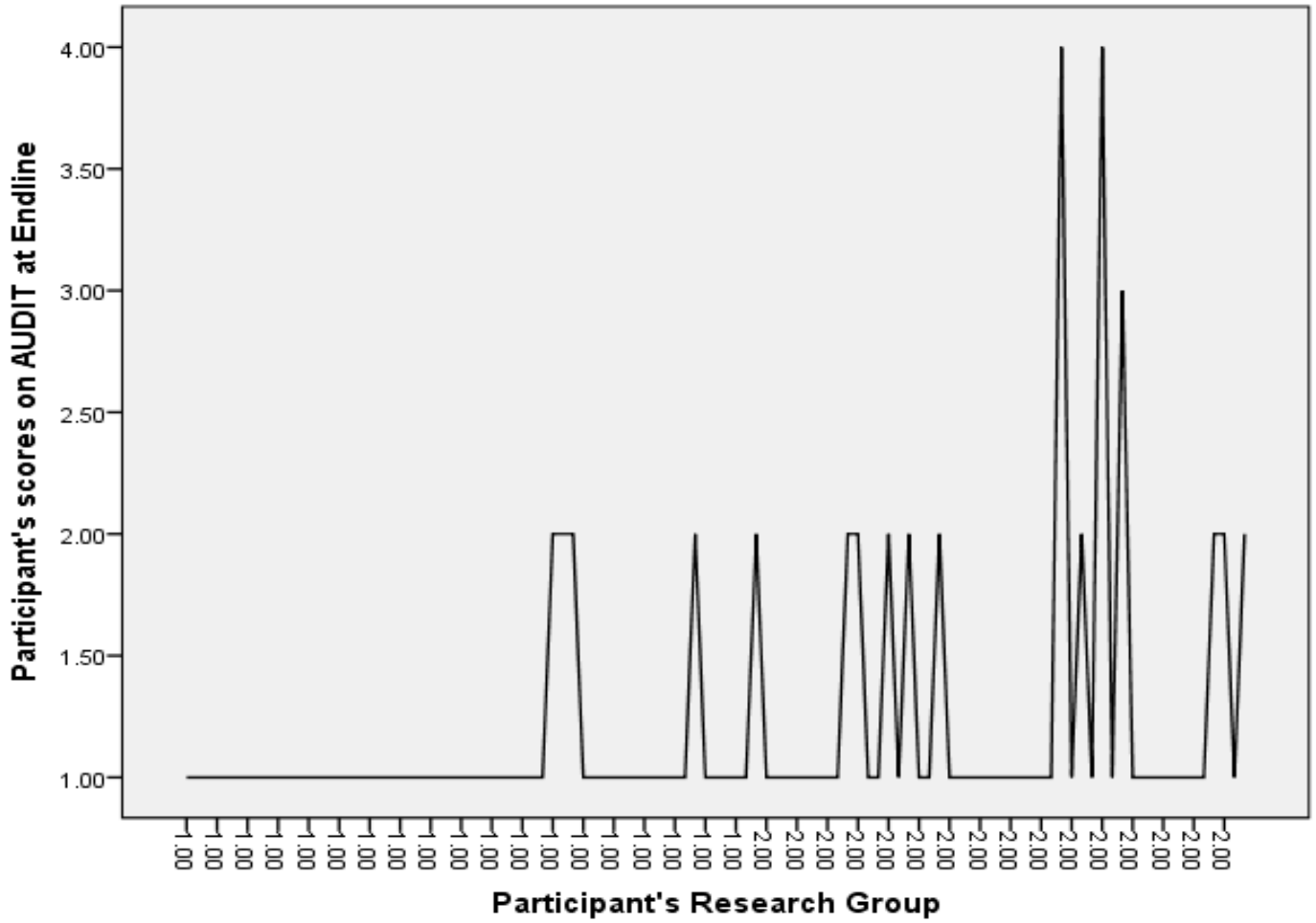

Figure 4.5: Frequency of Participant's Scores at End Line (Frequency Plot)

Item 1 represents the experimental group, while item 2 represents the control group, as indicated in Table 4.21. A noticeable decline in mean was seen at Item 1 (experimental) as opposed to the reduction in mean at Item 2 (control).

Table 4.22 presents the independent sample T-test

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Participant's score AUDIT at Baseline	Equal variances assumed	009	.926	187	103	.852	.03061	.16378	-.29421	.35543
	Equal variances not assumed			187	100.724	.852	.03061	.16395	-.29463	.35586
Participant's scores on AUDIT atMidline	Equal variances assumed	9.730	.000	704	103	.008	-.28061	.10378	-.48643	.07479

	Equal variances not assumed			2.585	.373	64	.012	-.28061	.10857	-.49748	.06374
Participant's scores on AUDIT at Endline	Equal variances assumed	32.236	.000	2.846	103		.005	-.29592	.10398	-.50214	.08970
	Equal variances not assumed			2.701	58.685		.009	-.29592	.1954	-.51514	.07670

Table 4.22: Independent Samples' T-Test

This statistical model is an inferential statistical test that determines whether a significant statistical divergence exists between the means in two unrelated units. This study worked with the null hypothesis that the population means from the experimental and control groups are equal, hence, there is no significant difference in means between two groups (H0:U1=U2). The equal variance assumed at baseline in means was .03061 with a standard deviation of .16378. At midline, the equal variance assumed was -.28061 with a standard deviation of .10378, whereas, at end line, the equal variance assumed was -.29592 with a standard deviation of .10398. The value of significant level was set at 0.05, on which the study can reject the null hypothesis and accept the alternative hypothesis, that is, that the population means are not equal. The results in Table 4.22 indicate that the population means are not equal (p=0.0001). Thus, the null hypothesis that there was no significant difference in population means of the two unrelated groups was rejected. This study, therefore, accepted the alternative hypothesis. The implication of this is that the treatment at the experimental group was statistically effective to reduce the alcohol use symptoms among the participants. Figure 4.6 shows the estimated marginal grand means of participants' AUD from baseline to midline and to end line.

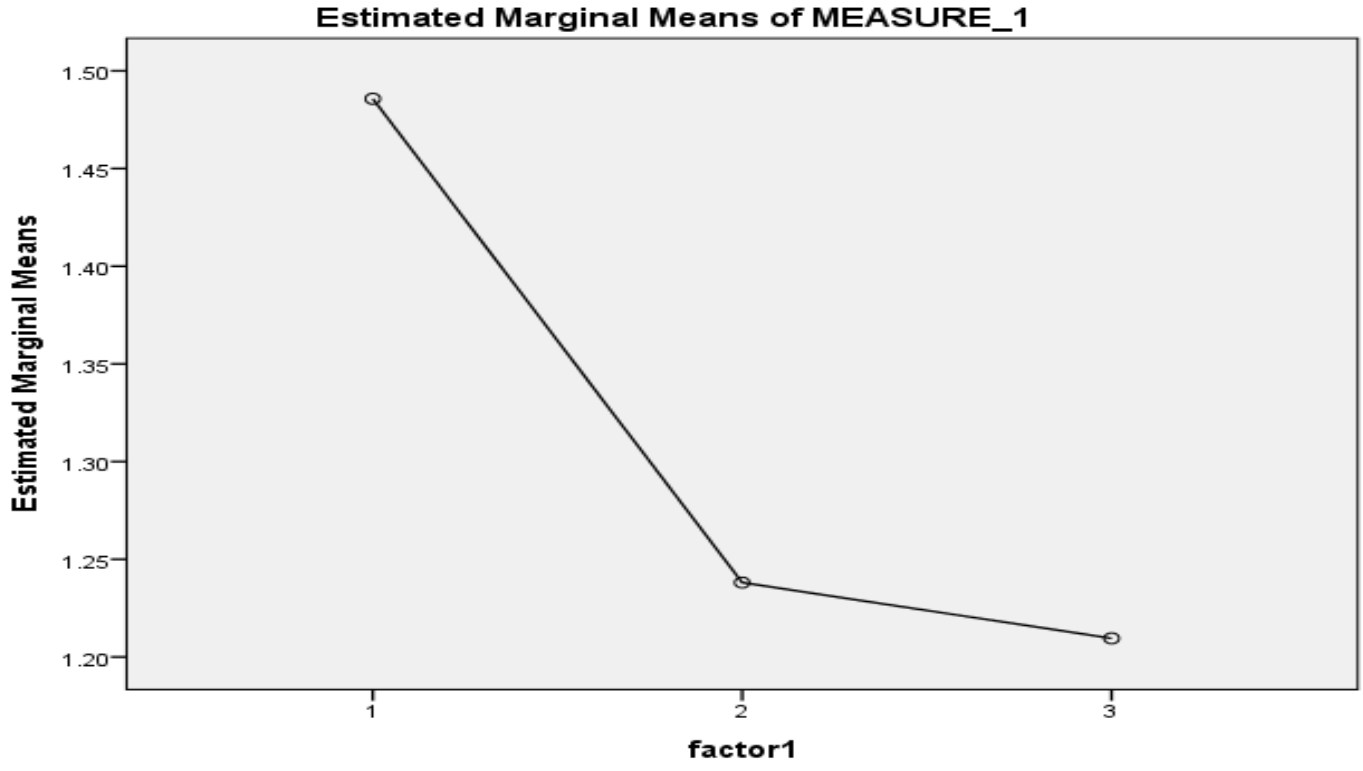

Figure 4.6: Estimated Marginal Means of Participant's AUDIT Scores at Baseline, Midline and Endline

Factor 1 represented the baseline mean, which was 1.486 ± (0.81SE). Factor 2 represented the reduction of grand mean at midline at 1.238 ± (0.53SE). Factor 3 represented the reduction of grand mean at end line at 1.210 ± (0.54SE) (see Figure 4.6).

Discussion

The study evaluated the efficacy of MI therapy to reduce the symptoms of AUD among the participants. The findings of this study showed that MIT is efficacious to reduce the symptoms of AUD among the participants (p=0.0001). This outcome agreed with several other studies that had been done to test the efficacy of MIT in treatment of AUD and addictive behaviors. For instance, in a research subjecting twenty-five years of empirical studies to a meta-analysis of MIT where a total of 119 studies were subjected to a meta-analysis targeting outcomes of substance use such as tobacco, alcohol, drugs, and marijuana; health related behaviors such

as diet, exercise, safe sex, gambling and engagement in treatment variables. The result of the meta-analysis showed that MIT was significant in reducing the severity of substance use but non-significant in reducing health-related behaviors (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). A similar meta-analysis of MIT in a forty-eight studies among 9,619 participants who were presenting with alcohol dependence, substance abuse, sedentary behavior and psychiatric conditions were subjected to an analysis. Sequel to significant outcomes of the treatment, the studies concluded that the emerging evidence for MIT in medical care settings suggests the therapy provides a moderate advantage over comparison interventions, and could be used for a wide range of addictive behavioral issues in health care (Lundahl, et al., 2013). Similarly, systematic reviews of effectiveness of MI in a health setting which considered the relevance for multi-morbidity with hazardous alcohol consumption were conducted. Twelve meta-analyses pertinent to multi-morbidity with AUD or dependence were identified. As an intervention, MI has been found to have a statistically significant effect on behavioral outcomes with multi-morbidity especially depression and anxiety disorders (McKenzie, Pierce, & Gunn, 2015). Additionally, the outcomes of a randomized controlled clinical trial, based in a large outpatient psychiatry program in an integrated health care system in Northern California were reported. The 307 participants who reported hazardous drinking, drug use and who presented with major depression showed that MIT was more effective than control in reducing rate of cannabis use and hazardous drinking significantly (Satre, et al., 2016). Similarly, Samson and Tanner-Smith (2015) in a comparative studies comparing the effectiveness of MIT, CBT and psycho-educational therapy (PET) interventions to treat heavy alcohol drinking college students reported that participants treated with MIT/MET had greater effect size and significant treatment outcomes compared to participants treated with CBT and PET (Samson & Tanner-Smith, 2015). Previous comparative study to evaluate the effectiveness of combining CBT and MIT to treat co morbid clinical and subclinical alcohol use disorder and major depression and to estimate the effect of this compared with those treated with CBT alone as control. The report indicated that CBT/MI combination proved more effective for treating subclinical and clinical AUD and MDD compared with controls for overall effect sizes at post-treatment for decrease of alcohol consumption and for decrease of symptoms of depression significantly (Reperl, et al., 2013).

Conclusion

MIT was tested as an intervention approach in this study. Participants that were treated with this approach had a significant reduction in severity of alcohol consumption. This implies that participants presenting with alcohol use disorders or hazardous alcohol drinking can freely choose to be treated with MIT because of the overwhelming evidence available in which this study is a contribution to its efficacy.

Recommendations

In view of the findings of this study, the researcher arrived to the following recommendations:

1. The university administration and counselors need to organize for therapy as a requirement in university, such that every student would be expected to go through specific hours of counseling with a therapist. This will provide exposure on how to be able to handle some difficult life challenges.
2. Since the study shows that the male students have a high AUD prevalence, stakeholders need to start educating boys from early primary school concerning the dangers of falling victim to alcohol and drug use. This will help the boys to grow up with the knowledge of the problem of AUD before it happens.
3. The enforcement of the alcohol policy need to be enhanced since it appears that even where universities may be branded drug free, alcohol use has not been dealt with decisively. Once enforced, all stakeholders would be at liberty to take action when need arises and everyone found in contravention would be held responsible.

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