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EFFICACY OF A MUSIC-BASED INTERVENTION ON ENHANCEMENT OF TREATMENT MOTIVATION AMONG CLIENTS WITH SUBSTANCE USE DISORDERS IN RESIDENTIAL TREATMENT IN KENYA

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ABSTRACT

Although evidence suggests that music-based interventions (MBI) may help enhance treatment motivation, their efficacy is generally untested among the Kenyan population. This motivated the current study to test the efficacy of a MBI on treatment motivation of clients with substance use disorder (SUD) in a selected treatment center. Subjects were 40 clients in a residential treatment facility with two branches. A quasi-experiment, nonequivalent control group pre-test post-test design was used. The treatment group, with 20 clients in branch A, received MBI in addition to treatment as usual (TAU) while the control, comprising 20 clients in branch B, only received the TAU in the same period. A Treatment Motivation (TM) test using the TCU/SRF Treatment Motivation scale was administered to both groups before and after the four weeks of MBI on the treatment group. Findings showed that the treatment group had significantly higher levels of treatment motivation at post-test compared to the control group after controlling for various covariates, suggesting that MBI may have contributed to the increased TM in the treatment group. This implies that MBI may be a promising intervention in enhancing treatment motivation among clients with SUD in treatment settings in Kenya.

Keywords: low treatment motivation, music-based intervention, music therapy, quasi-experimental design, substance use disorders, treatment motivation

INTRODUCTION

There has been a global increase in substance use disorder related cases. As indicated by the United Nations Office on Drug and Crime (UNODC, 2017), it is estimated that about 29.5 million (10%) drug users suffer from substance use disorders or drug dependence. Of this, a significant number is from Africa despite the African Union's effort to combat production, trafficking and use of illicit drugs (African Union, 2019).In countries like South Africa, Swaziland, Mozambique, and Nigeria, alcohol, tobacco, and cannabis are among the most commonly consumed drugs (Heerden et al., 2009; UNODC, 2012).

In Kenya, nationwide surveys by the National Authority for the Campaign Against Drug Abuse (NACADA) (2012; 2015; Kurui & Ogoncho, 2019) show that youth between the ages 15-26 use drugs such as miraa (khat), alcohol, tobacco and bhang (including confectioneries laced with marijuana). A study conducted by Kamenderi et al. (2016) among respondents between the ages of 15-65, found that about 12 % of them were current users of alcohol, 8.3% tobacco, 4.1% Khat and 1% marijuana (bhang). Furthermore, 6% of the same participants were current poly-drug users. Another study in Kajiado County, Kenya found that 45% of youth between the ages of 10-24 were current users of at least one drug (Chege, 2015). This drug use has contributed to cases of substance use disorders. A 2017 report by NACADA entailed a survey of participants between the ages of 15 to 65 years showing that over 10% of them suffered from alcohol use disorder (AUD), most (60%) of whom had a severe form (NACADA, 2017). This indicates the need for effective treatment.

Research Objective

The study sought to determine the efficacy of music-based intervention in enhancement of treatment motivation among clients in a selected substance use disorder treatment center in Kenya.

Specifically, the authors sought to:

Find out whether there were significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) in addition to treatment as usual (TAU) and those that only received treatment as usual (TAU).

LITERATURE REVIEW

The increase in substance use disorders in Kenya has seen a correspondent rise in the number of treatment centers. In these facilities, clients are admitted for periods ranging from 3 months and in some cases up to one year. The focus of treatment is on assisting clients attain recovery from SUD, through participation in a wide range of structured activities. For them to stay, participate, complete treatment and retain the gains made, the clients need motivation for treatment (DiClemente, 1999).

Treatment motivation has been shown to be among factors that predict the outcome of the treatment of substance related disorders (Shields et al., 2014). It is conceptualized as manifestation of problem recognition, expression of desire for help and readiness for treatment (Knight et al., 2012). When one scores highly on these three indicators of treatment motivation, they are said to have high motivation for treatment. A high score indicates that one acknowledges that substance use is a problem in their lives, and they are ready to receive the needed help, thus willing to work through treatment.

Study findings show that high motivation for change affects the behavior of clients in treatment centers (Silverman, 2015). Those with high treatment motivation tend to stay in treatment longer, complete programs, and maintain gains from treatment compared to those who report low treatment motivation (DiClementi et al., 1999). Further, such clients demonstrate improvement with regard to their drug use problem (Gouse et al., 2016; Shen et al., 2000).

On the other hand, low treatment motivation affects the treatment process negatively. Research shows that about 50% of the clients with substance use disorders indicate that low treatment motivation as a key factor in drop out (Ball et al., 2011; Ramlagan et al., 2010). In Kenya, Githae (2015) found that about 40% of clients with alcohol use disorder in in-patient treatment centers dropped out of treatment or relapsed. This could be an indicator of low treatment motivation among other dynamics. In addition to dropping out, the clients are likely to have poor engagement in the therapeutic program (Joe et al., 2014) which in turn may result to poor treatment outcomes (DiClemente et al., 1999).

Low treatment motivation can be detrimental to clients since there may be little or no progress in their recovery and they may easily relapse into drug use (Gossop et al., 2002) and as a result suffer the consequences such as mental disorders, various types of cancers, poor

relationships, poor performance at work and school, poverty and even death (Njati, 2017; UNODC, 1998). In view of these consequences there is need to address the problem of low treatment motivation among patients in treatment centers since high motivation has been shown to be beneficial in the change process (Gouse et al., 2016; Shen et al., 2000) .

In addressing the problem, various complementary and alternative medical (CAM) interventions have been used. CAM interventions are non-mainstream treatments that are used instead of the traditional conventional treatment (Fan, 2005). One such intervention is music-based intervention (MBI). This is defined as clinical and evidence based use of music interventions to accomplish individualized goals within a therapeutic relationship by a therapist (Hohmann et al., 2017). According to the American Music Therapy Association (2014), the use of music has resulted to a more efficient response to the overall intervention plan among different clients including those with SUDs. For instance, research shows that when music is used as a therapeutic tool it can assist clients in forming strong therapeutic relationships with the therapist (Nemeth, 2014; Silverman, 2019), and enhancing participation in therapy (Dingle et al., 2008). A therapeutic relationship forms an important part of treatment as it assists in facilitating change (Gaston, 1991) which in this case is enhancing motivation to treatment and subsequently sobriety among clients with SUDs.

Music-based interventions have been used to treat depression and anxiety (Burns & Woolrich, 2008), create positive emotions (Williams, 2019) and enhance self-awareness (Wigram et al., 2002). They have also been used as a mode of self-expression enabling the therapist to enter the world view of the clients, and influence them to make the changes needed. In this process, the client gets an opportunity to evaluate their behavior against their own internal standards and make these changes (Duval & Wicklund's, 1972).

Music plays a motivation role due to its intrinsic factors such as rhythm, melody, harmony, the lyrics, and, external factors such as cultural impact and extra-musical associations. As a therapeutic tool, music has been used in substance use treatment in different parts of the world (Silverman, 2015; Standley et al., 2008) with findings showing that music-based interventions can be helpful in exploring non-drug induced emotions (Baker et al., 2007) and facilitate engagement (Dingle et al., 2008).

Likewise, music-based intervention has been used to enhance treatment motivation among clients with SUD. Studies done in the United States of America (USA) have found that music

therapy intervention helped in the enhancement of treatment motivation among patients with substance use disorders (Baker et al., 2007; Silverman, 2015).

In a randomized wait-list effectiveness study conducted in the USA among patients in a detoxification center, Silverman (2012) found significant differences in motivation between the clients who received music therapy and the control/wait-list group. The treatment group that received music therapy showed significantly higher treatment motivation means compared to the control/wait-list group. Silverman (2009a) compared the effectiveness of verbal therapy versus music therapy in a single session at a detoxification unit. The findings indicated that music intervention may be as viable as verbal therapy in enhancing treatment eagerness/readiness to change and working alliance. However, other studies did not find significant differences between music and verbal therapy (Silverman, 2008; Silverman, 2011). The inconsistent findings indicate a need for more studies to further shed light on the efficacy of music-based interventions especially in different populations as both studies were conducted in somewhat similar populations in the USA. It is also noted that these studies were conducted in a detoxification center in a single session.

In related studies conducted outside the USA, MBIs were found to be effective in the treatment of mental health care patients. In Australia, an MBI was effective in enhancing treatment motivation among mental health patients including those with substance use disorder (Gold, et al., 2013).

Among adults with a dual diagnosis of SUDs and other co-occurring mental illnesses, music therapy has been used to enhance their motivation. According to Ross et al. (2008), music therapy was useful in enhancing motivation among these clients. Their study however did not have a control group for comparison purposes hence there could have been extraneous variables that contributed to the observed change in motivation that may have been overlooked. In fact Ross and colleagues recommended the use of a control group in future studies. Thus this paper uses a control group that was as similar as possible in order to compare the posttest results of the two groups.

Music-based interventions use different techniques as part of intervention with some focusing on the behavioral aspect of treatment. For instance Lyric analysis capitalizes on both psychotherapeutic and cognitive behavioral music therapy tenets (Choi, et al., 2009; Silverman, 2009). In the lyric analysis process, the music therapist facilitates an analysis of

lyrics of a song that are relevant to the clients' situation in an effort to evoke thoughts and feelings (Jurgensmeier, 2012). This process primarily leads to catharsis through self-expression as well as social interaction and an understanding of the patient's thought process.

Literature indicates that lyric analysis has been used to increase client's readiness to change and motivation to treatment (Silverman, 2009; Silverman, 2015). In a randomized study conducted among adult clients with SUDs, in a detoxification center, Silverman (2015) used lyric analysis to enhance treatment motivation. The study established significant differences between the treatment group that received music therapy in a single session and the control/wait-list group. The treatment group had significantly higher levels of treatment motivation compared to the control/wait-list group. It was interesting to find out whether similar findings would be obtained among clients with SUD in a developing country where music therapy is not a commonly used form of treatment, using lyric analysis. Additionally it is notable that most of this literature is based on studies done in detoxification centers and in single sessions of intervention. The current study was conducted in a long-term inpatient facility and the MBI was administered in four sessions.

In a variation of these studies lyric analysis has been used in combination with the artist's/band's history of substance abuse (rockumentary) to test for its effect on readiness to change and craving in clients in a detoxification facility (Silverman, 2011). This study found that there were significant between-group differences among the clients who received the rockumentary intervention and the ones that received talk therapy. The ones that received the rockumentary intervention had significantly higher scores than their counterparts in the talk therapy group. However in Silverman's study, the history of the artist/band in relation to drug use may have been a confounding factor with the success stories possibly influencing clients' motivation to treatment.

From the above literature review, it is noted that few studies have been conducted on the efficacy of music-based interventions in enhancing treatment motivation among clients with substance use disorders, and that the data from such studies is inconsistent with some supporting its efficacy (Dickerson et al., 2012; Silverman 2015; Wu et al., 2019) and others indicating otherwise (Jones, 2005; Murphy, 2008; Silverman, 2011). In addition, most of the studies on this subject have been done in the global West with little evidence of similar studies in developing regions such as Africa and Kenya in particular**.** Music therapy as a treatment modality has not been explored much in Kenya. There is little evidence of the use

of music in hospitals, by musicians (Kigunda, 2007) as well as in traditional and religious healing (Mbiti, 2002) where the practitioners may have little or no understanding of the power of music as a therapeutic agent (Kigunda, 2007). This does not fit in the definition of Music therapy as defined by American Music Therapy Association (AMTA) (2020). The use of music therapy as a treatment modality must be done by a therapist who has undergone training in an accredited program. In fact, the authors did not find any studies on music therapy among clients with SUD in Kenya in the existing literature. This gap precipitated the need for more studies testing the efficacy of MBI in enhancing treatment motivation of clients in SUD treatment as depicted in this paper.

METHODOLOGY

This study utilized a nonequivalent control group pretest-posttest quasi-experimental design. Participants were drawn from two branches of a selected substance use disorders treatment center in Kenya that is accredited by the national regulatory body, the National Authority for the Campaign against Alcohol and Drug Abuse (NACADA). The facility utilizes the same treatment model at the two branches. In addition, the staff in both branches had similar qualifications and remuneration rates. This was important as it ensured that the participants in both branches experienced similar conditions as well as treatment as usual during the study. Since the participants were already in a residential treatment facility, randomization would not have been feasible as it would have required moving participants to different geographical locations to avoid the risk of contamination of findings as a result of the interaction of the two groups.

Using simple random sampling, one of the branches was selected to be the treatment group while the other was considered the control. To obtain the participants, purposive sampling was used based on the following inclusion criteria. Participants had to be aged18 and above, conversant with English (since some of the songs used in the MBI were in English), had been in the treatment center for not more than eight weeks, had to remain in treatment for the next four weeks, and had not had music-based intervention sessions before. Although efforts were made to ensure that the two groups were as similar as possible there could have been other confounding factors. These factors were statistically controlled for.

To determine the minimum sample size for this study, Miot's (2011) formula was used and 15.4 participants in each group were determined to be sufficient for the study. To protect

against drop out, the authors used a final sample of 40 participants: 20 for both the treatment and control groups respectively.

The Texas Christian University (TCU) Treatment Motivation scale was adapted from the TCU Self Rating Form (TCU/SFR) (Simpson, 1992) to measure the level of treatment motivation pre and post intervention. The treatment motivation scale has a total of 24 items which are divided into three subscales: Problem recognition, desire for help, and treatment readiness. The problem recognition scale has 9 items while desire for help and treatment readiness scales have 7 and 8 items respectively. All items were scored on a five-point Likert type scale from Strongly disagree to Strongly agree. Higher scores on the TCU treatment motivation scale indicate greater motivation for treatment and change.

A study on the psychometric properties of the TCU/SRF Motivation scale determined its validity in measuring treatment motivation among substance use disorder clients (De Weert-Van Oene et al., 2002). In terms of reliability, the problem recognition, desire for help and treatment readiness scales had a reliability coefficient of .87, .75 and .73 for the Drug Abuse Treatment for AIDS-Risks Reduction 2 (DATAR 2) sample and .90, .82 and .72 for the Substance Abuse Treatment Facility (SATF) sample respectively. A good to fit coefficient for the DATAR 2 sample (.97) and for the SATF (.95) was acceptable (Knight et al., 1994).

The study process entailed a pretest on treatment motivation using the TCU/SFR treatment motivation scale (Simpson, 1992) conducted by the researcher-therapist on both the treatment and control groups. This was followed by a four-week music-based intervention (MBI) administered weekly in 60-minute sessions to the treatment group. This was in addition to the treatment as usual (TAU) offered by the treatment center. During the same period, the control group on the other hand only received the TAU. Treatment as usual (TAU) entailed the conventional treatment modalities in the facility including individual and group counseling, psycho-education, pastoral activities and pharmacotherapy, offered by members of staff at the treatment facility. A posttest using the TCU/SFR treatment motivation scale (Simpson, 1992) was then administered to both groups by research assistants who were not aware which group had received the intervention and which had not. This was meant to eliminate response bias post intervention. It is important to note that the authors did not have any relationship with the participants prior to the study. To eliminate possible bias, the results of the post test for the two groups the other two researchers were involved in the analysis of the data obtained. The data was analyzed using one way Analysis of Covariance to determine if music-based

intervention had any effect on the treatment motivation levels of the participants while statistically controlling for confounding factors.

Description of the MBI Protocol

The authors developed MBI comprising a live presentation of a pre-selected song followed by lyric analysis where participants were provided the opportunity to share their thoughts about the song lyrics and how they applied to their experiences in addiction. The selected songs were; "The more I drink" by Blake Shelton, "Mac Muga" by Ali Kiba, "Desparado" by Eagles and "Roar" by Katty Perry. The songs selection were based on four themes anchored on the Transtheoretical model of change by Prochaska and DiClementi (1984), namely; consciousness raising, self-evaluation and discrepancies in life, decisional balance and, self-efficacy. In addition, the songs were selected based on the ISO principle that is conceptualized as the principle of matching music with the behavior of the clients (Michel et al., 2005). Such music is likely to have an influence on the clients if it resonates with them and their behavior and experiences

Each MBI session lasted 60 minutes and comprised the following five steps:

Step 1: Opening Phase/check-in (15minutes), which involved researcher/interventionist checking in with the participants how they are feeling at that moment. They were provided the opportunity to select instruments (djembe drum and tambourine) to play (if they wanted to) and the song lyric sheets were distributed.

Step 2: Practice phase (5minutes), which involved the researcher/interventionist, practicing a simple rhythm for the song of the day with participants playing the djembe drum and tambourine. This was done to enhance participation and engagement of the clients.

Step 3: Live presentation of a pre-selected song by the researcher/interventionist (5 minutes). The authors was accompanied by a 6 steel-string guitar (played by researcher-interventionist), a djembe drum and a tambourine each played by a participant. The other participants were invited to sing along.

Step 4: Analysis and discussion of the lyrics by the participants (30 minutes), which entailed exploration of the lyrics based on a lyric analysis discussion Guide developed by the authors (See appendix A). The guide was to keep the participants focused on the themes of the sessions.

Step 5: Closing Phase (5 minutes), which involved a summary of what had happened in the session, and, a remark on the next session from the researcher/interventionist.
The intervention was delivered to the treatment group every Tuesday between 12 noon and 1.00 pm for a period of four weeks, in a private room within the treatment center while the control group received treatment as usual in their respective branch.

RESULTS

In terms of demographics, most of the participants were aged 33-37 (22.5%) and 92.5% were male. Most had attained university education (75%) while the rest had secondary education as their highest qualification. About 63% of the participants were in salaried employment. Regarding nature of admission (voluntary or involuntary), 75% of the participants were voluntarily admitted with 80% of participants being in their first admission.

This study sought to determine if there were significant differences in treatment motivation between the treatment group (participants exposed to music-based intervention in addition to TAU) and the control group (participants exposed to TAU only). In order to analyze the data using Analysis of Covariance (ANCOVA) the assumptions of normality of distribution, homogeneity of variance and the covariate's linear relationship to the dependent variable were tested. The results showed that the treatment motivation level was normally distributed and since the p value was greater than .05, at p=.21, the assumption of normal distribution was met, as presented on Table I.

Table 1. Shapiro-Wilk Test of Normality of Treatment Motivation at Pretest

	Shapiro-Wilk		
	Statistic	Df	Sig.
Treatment Motivation Pretest	.963	40	.209

The assumption on homogeneity of variance was met as the difference between the treatment and the control group was not significant, F (1, 38) = 3.88, p =.06 (reported at p< .05), as shown on Table 2.

Table 2. Levene's Test of Equality of Error Variances[a]

Dependent Variable: Treatment Motivation Post-test			
F	df1	df2	Sig.
3.88	1	38	.06

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Treatment Motivation Pretest + Age of Respondent + Level of Education + Nature of Admission + Number of Admissions + Group Membership

The covariate TM pretest had a linear relationship with the dependent variable TM posttest at r =.78, n = 40, p = .00 which is less than .05, as shown on Table 3.

Table 3. **Pearson Correlation Linear Relationship Test**

		Treatment Motivation Pretest	**Treatment Motivation Posttest**
Treatment Motivation Pretest	Pearson Correlation	1	.778**
	Sig. (2-tailed)		.000
	N	40	40
Treatment Motivation Total Posttest	Pearson Correlation	.778**	1
	Sig. (2-tailed)	.000	
	N	40	40

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

Since the assumptions were met, the authors proceeded to test the null hypothesis that there are no significant differences in treatment motivation (TM) between clients exposed to music-based intervention (treatment group) in addition to TAU and the control group only exposed to TAU. Using one way analysis of variance, the results indicated that at post-test the treatment group had a higher TM mean score (M= 99.20, SD= 13.95) compared to the control group (M=86.45, SD= 15.63), as shown on Table IV.

Table 4. Descriptive Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group

	N=	TM Pre-test means	Std. Deviation	TM Post-test Means	Std. Deviation	TM Post-test Adjusted Means	Std. Errors
Experimental Group	20	80.15	17.38	99.20	13.95	100.16[a]	1.60
Control Group	20	82.45	16.41	86.45	15.63	85.50[a]	1.60
Total	40	81.30	16.73	92.83	15.99		

Covariates appearing in the model are evaluated at the following values: Treatment Motivation Pretest = 81.30, Age of the respondent = 4.28, Level of education = 2.75, Nature of Admission = 1.25, Number of Admissions = 1.30.

Additionally, the results show that the treatment group had a standard deviation of 13.95, indicating that the scores of the treatment group were clustered around the mean, compared to the ones of the control group (15.63) that were relatively spread out at post-test. The authors further controlled for covariates, such as age, level of education, nature of admission and number of admissions, and found that the treatment group had a higher TM mean score of M= 100.16, SE= 1.60, compared to the control group that had M= 85.50, SE= 1.60. From these findings, the treatment group had higher treatment motivation scores than the control group, after removing the effects of the covariates. This shows that the combination of the MBI and TAU seem to have a greater effect in enhancing the TM means compared to the TAU alone.

Further, an Analysis of Covariance (ANCOVA) was conducted and obtained the results; F (1, 33) =41.63, p=.00, n_p^2 =.56 at a p>.05 as presented in Table V.

Table 5. **One Way ANCOVA Post-Test Means Comparison between Experimental and Control Group**

Tests of Between-Subjects Effects

Dependent Variable: Treatment Motivation Posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8307.065	6	1384.511	27.545	.000	.834
Intercept	519.989	1	519.989	10.345	.003	.239
Treatment Motivation Pretest	4026.325	1	4026.325	80.104	.000	.708
Age of Respondent	22.671	1	22.671	.451	.507	.013
Level of Education	67.584	1	67.584	1.345	.255	.039
Nature of Admission	62.278	1	62.278	1.239	.274	.036
Number of Admissions	2.536	1	2.536	.050	.824	.002
Group Membership	2092.290	1	2092.290	41.626	.000	.558
Error	1658.710	33	50.264			
Total	354625.000	40				
Corrected Total	9965.775	39				

a. R Squared = .834 (Adjusted R Squared = .803)

Since the P value was less than .05, the null hypothesis was rejected in favor of the alternative hypothesis depicting that there were significant differences in treatment motivation (TM) between the treatment and the control groups at posttest. The treatment group had a significantly higher mean at posttest than the control group after controlling for various covariates implying that the music-based intervention in addition to TAU is was efficacious in enhancing treatment motivation compared to TAU only. Additionally, the MBI accounted for n_p^2 =.56 of the variance of TM based on group membership (treatment or control group). Based on Cohen's (1978) guidelines, the MBI had a medium effect size on the treatment group's level of TM.

DISCUSSION

The findings indicated that the music-based intervention was efficacious in increasing treatment motivation among clients with substance use disorders when combined with TAU perhaps because the intervention shaped the possibility of change among the clients through exploration of emotions as suggested by Baker et al. (2007) and facilitated engagement as indicated by Dingle et al. (2008).

In line with this, Willis (1970) had found that music actively shapes possibilities for action and makes particular ways of being and feeling in real time (see also Frith, 1978). Therefore, the presence of music in the intervention may have played a role in increasing a possibility of change and consequently an increase of motivation towards treatment. For instance, during the first session, one of the participants pointed out that the main character in the song "The more I drink" inspired him to be firm with his decision to stop using alcohol even if his friends will not. The song enhanced his motivation to change.

The findings could also be because one of the components of the MBI addressed self-efficacy through the song 'Roar' by Katy Perry to emphasize clients' power to overcome the substance use disorder and enhance self-confidence to cope with the difficulties of treatment. Boulle (2011) found that music helps in changing perceptions and therefore its use in the intervention may have helped in changing perceived powerlessness to the belief that they can change their substance use situation. This probably in turn enhanced their readiness and self-belief to work on their wellbeing through treatment. This is evidenced by a the participant who noted that while the song 'Roar' sung during the session, he felt that he could actually work through his treatment and recover from the SUD.

Dickerson et al. (2012) found out that music therapy increased motivation for the SUD clients to avoid drugs and stay in recovery. The musical drill on self-efficacy coupled with the awareness of the harm and discrepancies in their lives probably gave the participants motivation and hope that they can overcome the disorder (Dunlap, 2017). This may have motivated them to engage in treatment. This engagement may be helpful in sustaining recovery as Dingle et al. (2008) note. As well, Prochaska & DiClemente (1984) posit in the Transtheoretical Model of Change, that self-efficacy plays a role in clients engaging in the change process, which in our case is treatment. This may explain the role the MBI played in enhancing treatment motivation among the participants in the treatment group.

This paper adds evidence to the body of knowledge on the efficacy of music-based interventions in enhancing treatment motivation among clients with SUDs. Unlike most studies conducted in the Western countries such as the USA in detoxification centers (Silverman, 2011, p. 2015) where clients stay for a short period of time, this study was conducted on a long-term basis in an inpatient SUD treatment facility. This may indicate that the MBI may be useful in helping clients with low treatment motivation even in long-term inpatient facilities. Furthermore, this intervention may provide an experiential modality that can be used to enhance TM in addition to the conventional methods currently used SUDs treatment edifice.

Since research shows that music therapy is more beneficial when there is a goal than other uses such as recreation singing (Werner et al., 2017), and, the present study shows the potential benefits of using music-based interventions among a sample of the Kenyan population, there is need to embed an evidence-based, systematic and structured practice of music therapy in treatment of substance use disorders on the country.

The findings of this study are similar to Silverman's (2015) study which showed a significant increase in treatment motivation among clients in the treatment group compared to the control. Similar findings had been documented by Ross et al., (2008) who found that music therapy enhanced treatment motivation among dual-diagnosed clients and Wu et al., (2019) who also found that music therapy enhanced treatment motivation among female clients with methamphetamine use disorder.

CONCLUSION

The study was designed to determine the efficacy of music-based intervention on treatment motivation among clients in selected substance use disorder treatment centers in Kenya. The findings showed that the MBI in combination with TAU was efficacious in increasing treatment motivation among clients in treatment for SUD and therefore the combination of the two is more beneficial in enhancing treatment motivation compared to TAU only.

However, this study had various limitations. First, the limited size of the sample used in this study and the fact that only a single treatment center (with two branches in different locations) was used; it is possible that there may have been other variables that may have influenced the study outcomes. Second, since randomization was not feasible other variables

may have influenced the results of this study. However, efforts were made to ensure similarity of the two groups and covariates were statistically controlled for.

RECOMMENDATIONS

Based on the findings, the following general recommendations are made: the agencies charged with regulation of treatment standards for SUDs, National Authority for the Campaign against Alcohol and Drug Abuse (NACADA) and the Ministry of Health in Kenya, could partner with institutions of higher learning to invest in research on the place of music-based interventions to establish their place in the National Protocol for Treatment of Substance Use Disorders. In addition, addiction treatment professionals may consider incorporating evidence-based music-based interventions to enhance treatment motivation of clients with SUDs. On the other hand, to embed the professional practice, institutions of higher learning offering addiction treatment training may also consider including training in music-based interventions in their training as it remains a therapeutic modality that is being silently used in the Kenyan health environment (Kigunda, 2007) and can also be used in the substance use disorder treatment edifice in a systematic and structured way.

Conflict of Interest: None Declared

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APPENDIX A

LYRIC ANALYSIS GUIDE

Introduction of the session: "Today we are talking about life in addiction. Your life in addiction came with challenges, in terms of your behavior and relationship with others. I would invite you to take a lyric sheet, listen to the song, and try to identify the characteristics of addiction as reflected in the song. Also reflect on your life and identify things that are similar to the main character in the song. There are no 'right or wrong' answers as we listen and discuss the song".

The researcher-therapist played the song while the clients listened. Then clients were invited to share about the music using guiding questions.

Questions to guide the lyric discussion process

- What message do you think the song was trying to convey?
- What are some of the things the artist mentions to show that the 'coke drinking' guy has an addiction?
- Reflection: Are there similarities between your life and the guy in the song? If there are what are these similarities?
- What was going through your mind as you were listening to the song and what prompted those thoughts?
- When Blake Shelton says in the chorus "the more I drink, the more I drink then am the world's greatest lover and a dancing machine. I get loud, I get proud, and it gets worse!" do you relate to this? What are some of the embarrassing things that you did while high/intoxicated?
- What similarities or differences did you notice between your responses and others in the group?
- Several people nodded when……talked about……. It seems as though many of us may have had similar experiences.
- Personal insight: What thoughts did this song generate?
- What feelings did this song generate?
- What insights have you gained about yourself, in terms of behavior, in relation to your substance and drug use?
- Transfer new insights to life; how does this song relate to your life outside the group?
- What awareness have you gained about yourself that you can take with you after the session?