

**EFFECTIVENESS OF MUSIC-BASED INTERVENTION IN ENHANCING
TREATMENT MOTIVATION AMONG CLIENTS IN A SELECTED
SUBSTANCE USE DISORDERS TREATMENT CENTRE IN KENYA**

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C82/CTY/32905/2015**

**A THESIS SUBMITTED TO THE SCHOOL OF HUMANITIES AND SOCIAL
SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (COUNSELLING
PSYCHOLOGY) OF KENYATTA UNIVERSITY**

APRIL, 2022

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or for any other award.

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DEDICATION

This work is dedicated to the men and women struggling with addiction, more so the ones who graciously offered themselves to be part of this study. Thank you!

I also dedicate this work to anyone who is constantly working on their dreams. It can be done!

ACKNOWLEDGEMENT

I would like to first thank and greatly appreciate my supervisors, Dr. Beatrice Kathungu, Dr. Muchiri Karega and Dr. John Samson Oteyo, for working tirelessly with me. Your sea of wisdom, constant support and challenge has made me grow in my academic life. To my editor, Mr. Wainainah Kiganya, thank you for making this work better. I appreciate you.

To the treatment centre where this study was done, I am sincerely thankful for the assistance you offered me. May God bless the work of your hands and reward you faithfully.

To my parents, Mr. and Mrs. Peter and Margaret Kamau, thank you for believing in me and for the constant encouragement even when it was tough. You inspired me through your hard work and the values that you instilled in me. To my siblings Jude Macharia, Crispin Ndegwa and Christine Njeri, thanks for being a source of great motivation throughout this journey.

I am extremely grateful to the late Rev. Prof. Charles Nyamiti. You took me through music education and led me to the greatest heights of the art. Your academic prowess and musical greatness inspired me to incorporate music into my academic life. Thank you for being my greatest inspiration. I would also like to thank Rev. Fr. John Kariuki for inspiring me to learn and play more musical instruments, some of which I used in this study. God bless you.

Lastly, I would like to thank the Apostles of Jesus community for the support that you offered since the beginning of my academic journey. Special thanks to Fr. Peter Choi, Fr. Isaiah Bugaku, Rev Dr. Vitalis Mshanga and Rev. Dr. Camillus Leku. Your support, advice and inspiration have been a strong foundation in my academic life. Thank you.

TABLE OF CONTENTS

| | |
|---|------------|
| DECLARATION | ii |
| DEDICATION | iii |
| ACKNOWLEDGEMENT | iv |
| TABLE OF CONTENTS | v |
| LIST OF TABLES | ix |
| LIST OF FIGURES | xi |
| ABBREVIATIONS AND ACRONYMS | xii |
| OPERATIONAL DEFINITION OF TERMS | xiv |
| ABSTRACT | xvi |
| CHAPTER ONE | 1 |
| INTRODUCTION | 1 |
| 1.1 Background of the Study | 1 |
| 1.2 Statement of the Problem..... | 15 |
| 1.3 Purpose of the Study | 16 |
| 1.4 Objectives of the Study..... | 16 |
| 1.4.1 Specific Objectives | 16 |
| 1.5 Hypotheses | 17 |
| 1.6 Justification and Significance of the Study..... | 18 |
| 1.7 Scope and Limitations of the Study | 19 |
| 1.8 Assumptions of the Study | 21 |
| CHAPTER TWO | 22 |
| LITERATURE REVIEW | 22 |
| 2.1 Introduction..... | 22 |
| 2.2 Theoretical Framework..... | 22 |
| 2.2.1 Transtheoretical Model of Change..... | 22 |
| 2.3 Review of related studies | 27 |
| 2.3.1 Music-based Intervention in Substance Use Disorder Treatment..... | 28 |
| 2.3.2 Music-based Intervention and Treatment Motivation..... | 32 |
| 2.3.3 Music-based Intervention and Problem Recognition..... | 41 |

| | | |
|---|--|-----------|
| 2.3.4 | Music-based Intervention and Desire for Help | 46 |
| 2.3.5 | Music-based Intervention and Treatment Readiness | 49 |
| 2.4 | Summary of Literature Review and Theoretical Framework | 52 |
| 2.5 | Conceptual Framework | 55 |
| CHAPTER THREE | | 57 |
| RESEARCH METHODOLOGY | | 57 |
| 3.1 | Introduction..... | 57 |
| 3.2 | Research Design..... | 57 |
| 3.3 | Study Variables..... | 58 |
| 3.4 | Site of the Study..... | 59 |
| 3.5 | Target Population..... | 59 |
| | 3.5.1 Inclusion Criteria | 59 |
| | 3.5.2 Exclusion Criteria | 60 |
| 3.6 | Sampling Techniques and Sample Size | 60 |
| 3.7 | Research Instruments | 61 |
| 3.8 | Validity and Reliability..... | 62 |
| 3.9 | Pilot Study..... | 63 |
| 3.10 | Data Collection Procedures..... | 64 |
| | 3.10.1 Recruitment | 64 |
| 3.11 | The Treatment/Intervention | 65 |
| 3.12 | Data Analysis and Presentation | 69 |
| 3.13 | Data Management and Ethical Considerations | 70 |
| CHAPTER FOUR..... | | 72 |
| DATA PRESENTATION, ANALYSIS AND DISCUSSION | | 72 |
| 4.1 | Introduction..... | 72 |
| 4.2 | Demographic Characteristics of the Sample..... | 72 |
| | 4.2.1 Age of the Participants..... | 73 |
| | 4.2.2 Gender of the Participants..... | 74 |
| | 4.2.3 Level of Education of Participants..... | 75 |
| | 4.2.4 Occupation of Participants | 76 |

| | | |
|-------|---|------------|
| 4.2.5 | Nature (Voluntary or Involuntary) of Admission of the Participants | 77 |
| 4.2.6 | Number of Admissions of the Participants | 78 |
| 4.2.7 | Age and Nature of Admission (Voluntary and Involuntary)..... | 79 |
| 4.2.8 | Gender and Nature of Admission..... | 81 |
| 4.3 | Music-Based Intervention and Treatment Motivation..... | 82 |
| 4.3.1 | Test of ANCOVA Assumptions..... | 82 |
| 4.3.2 | MBI and Treatment Motivation One-Way ANCOVA analysis | 86 |
| | 4.3.2.1 Descriptive Pre-test and Post-test Treatment Motivation Means Comparison between the Experimental and the Control Group..... | 86 |
| 4.4 | MBI and Problem Recognition | 94 |
| 4.4.1 | Test of ANCOVA Assumptions..... | 95 |
| 4.4.2 | MBI and Problem Recognition One-Way ANCOVA Analysis | 99 |
| | 4.4.2.1 Descriptive Pre-test and Post-test Problem Recognition Means Comparison between the Experimental and the Control Group..... | 99 |
| 4.5 | MBI and Desire for Help | 107 |
| 4.5.1 | Test of Analysis of Covariance Assumptions | 108 |
| 4.5.2 | MBI and Desire for Help One-Way ANCOVA Analysis | 112 |
| | 4.5.2.1 Descriptive Pre-test and Post-test Desire for Help Means Comparison between the Experimental and the Control Group..... | 112 |
| 4.6 | MBI and Treatment Readiness..... | 120 |
| 4.6.1 | Test of Analysis of Covariance Assumptions | 121 |
| 4.6.2 | MBI and Treatment Readiness One-Way ANCOVA Analysis..... | 125 |
| | 4.6.2.1 Descriptive Pre-test and Post-test Treatment Readiness Means Comparison between the Experimental and the Control Group..... | 126 |
| | CHAPTER FIVE..... | 134 |
| | SUMMARY, CONCLUSIONS AND RECOMMENDATIONS | 134 |
| 5.1 | Introduction..... | 134 |
| 5.2 | Summary of Key Findings..... | 134 |
| 5.3 | Conclusions..... | 135 |
| 5.4 | Recommendations..... | 137 |
| | 5.4.1 Recommendations for Further Research..... | 138 |

| | | |
|-------------------|--|------------|
| REFERENCES | | 140 |
| APPENDIX I | INTRODUCTION LETTER AND CONSENT FORM FOR THE CLIENTS | 152 |
| APPENDIX II | QUESTIONNAIRE FOR PARTICIPANTS | 154 |
| APPENDIX III | TCU TREATMENT MOTIVATION SCALE | 155 |
| APPENDIX IV | NON-EQUIVALENT GROUPS PRE-TEST/POST-TEST DESIGN..... | 157 |
| APPENDIX V | TREATMENT PROTOCOL FOR EACH SESSION | 158 |
| APPENDIX VI | LYRIC DISCUSSION, ANALYSIS AND SUMMARY GUIDE | 161 |
| APPENDIX VII | QUESTIONS TO GUIDE THE LYRIC ANALYSIS PROCESS..... | 162 |
| APPENDIX VIII | THEMATIC GUIDE OF THE PRE-SELECTION OF SONGS..... | 164 |
| APPENDIX IX | SUBSTANCE USE DISORDER INPATIENT TREATMENT CENTRES IN KENYA..... | 165 |
| APPENDIX X | NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION LICENSE | 167 |
| APPENDIX XI | ETHICS REVIEW COMMITTEE APPROVAL | 168 |

LIST OF TABLES

| | | |
|-------------|---|-----|
| Table 4. 1 | Age of the Participants..... | 73 |
| Table 4. 2 | Gender Distribution of the Participants | 74 |
| Table 4. 3 | Level of Education of Participants..... | 75 |
| Table 4. 4 | Occupation of Participants..... | 76 |
| Table 4. 5 | Nature of Admission of the Participants..... | 78 |
| Table 4. 6 | Number of Admissions of the Participants | 79 |
| Table 4. 7 | Age and Nature of Admission of Participants | 80 |
| Table 4. 8 | Gender and nature of admission | 81 |
| Table 4. 9 | Levene's Test of Equality of Error Variances ^a | 84 |
| Table 4. 10 | Pearson Correlation Linear Relationship Test | 85 |
| Table 4. 11 | Descriptive Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group..... | 87 |
| Table 4. 12 | One-way ANCOVA Post-Test Means Comparison between Experimental and Control Group..... | 89 |
| Table 4. 13 | Post-hoc Test for Size of the Main Effect of the Music-Based Intervention..... | 91 |
| Table 4. 14 | Levene's Test of Equality of Error Variances..... | 97 |
| Table 4. 15 | Pearson Correlation Linear Relationship Test | 98 |
| Table 4. 16 | Descriptive Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group..... | 100 |
| Table 4. 17 | One-way ANCOVA Problem Recognition Post-test Means Comparison between Experimental and Control Group | 102 |
| Table 4. 18 | Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Problem Recognition (PR) | 104 |
| Table 4. 19 | Levene's Test of Equality of Error Variances..... | 110 |
| Table 4. 20 | Pearson Product-Moment Linear Relationship Test..... | 111 |
| Table 4. 21 | Descriptive Desire for Help (DH) Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group..... | 113 |
| Table 4. 22 | One-way ANCOVA Desire for Help Post-test Means Comparison between Experimental and Control Group | 115 |

| | | |
|-------------|---|-----|
| Table 4. 23 | Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Desire for Help | 117 |
| Table 4. 24 | Levene's Test of Equality of Error Variances | 123 |
| Table 4. 25 | Pearson Product-Moment Linear Relationship Test | 124 |
| Table 4. 26 | Descriptive Treatment Readiness (TR) Pre-test and Post-test Means Comparison between the Experimental and the Control Group | 127 |
| Table 4. 27 | One-way ANCOVA Treatment Readiness Post-test Means Comparison between Experimental and Control Group | 129 |
| Table 4. 28 | Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Treatment Readiness | 131 |

LIST OF FIGURES

| | | |
|----------|--|-----|
| Figure 1 | Conceptual Framework..... | 555 |
| Figure 2 | Treatment Motivation Pretest Normality Scatter Plot | 83 |
| Figure 3 | Problem Recognition Scatter Plot for Normal Distribution of Means..... | 96 |
| Figure 4 | Desire for Help Pre-test Mean Normal Distribution Histogram..... | 109 |
| Figure 5 | Levene's Test of Equality of Error Variances | 123 |
| Figure 6 | Treatment Readiness Linear Relationship Scatter Plot..... | 125 |

ABBREVIATIONS AND ACRONYMS

| | |
|----------------|---|
| AMTA | America Music Therapy Association |
| ANCOVA | Analysis of Covariance |
| AU | African Union |
| CAM | Complementary and Alternative Medicine |
| CBT | Cognitive Behavioural Therapy |
| DH | Desire for Help |
| MBI | Music-based Intervention |
| MET | Motivation Enhancement Therapy |
| MT | Music Therapy |
| NACADA | National Authority for the Campaign Against Alcohol and Drug Abuse |
| NACOSTI | National Commission for Science, Technology and Innovation |
| NIDA | National Institute on Drug Abuse |
| PR | Problem Recognition |
| SAMHSA | Substance Abuse and Mental Health Services Administration |
| SUD | Substance Use Disorder |

| | |
|--------------|--|
| TAU | Treatment As Usual |
| TCU | Texas Christian University |
| TM | Treatment Motivation |
| TR | Treatment Readiness |
| TTM | Transtheoretical Model of Behaviour Change |
| UK | United Kingdom |
| UNODC | United Nations Office on Drugs and Crime |
| USA | United States of America |

OPERATIONAL DEFINITION OF TERMS

- Client:** A person who seeks treatment for substance use disorder(s).
- Complementary and alternative medicine :** Non-mainstream interventions used to complement the mainstream ones.
- Desire for help:** Client's awareness of the need for change and interest in attaining support.
- Iso principle:** The principle of matching music with the behaviour of the client
- Music-based intervention:** The use of music and music elements to create awareness, enhance insight and encourage change from substance use.
- Music therapy:** A clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed music therapist.
- Problem recognition:** The level of a client's acknowledgement or denial of behavioural complications resulting from drug use.

- Standard care:** This includes any conventional treatment such as counselling, pharmacotherapy, offered at the treatment facility. It is also referred to as treatment as usual.
- Substance use disorder:** A mental disorder that affects people's brain and behaviour, leading to a person's inability to control their use of a substance despite harmful consequences.
- Treatment centre:** A facility that offers treatment for clients with substance use disorders.
- Treatment motivation:** A psychological construct characterized by a manifestation of problem recognition, expression of desire for help and treatment readiness by clients in treatment for substance use disorders.
- Treatment readiness:** Client's willingness to accept and actively participate in treatment.

ABSTRACT

There is evidence to suggest that some clients admitted in drug treatment centres manifest low Treatment Motivation (TM). This negatively affects the uptake, retention, participation and completion of treatment. Clients with high TM finish treatment and retain the gains made. It is, therefore, critical that the issue of treatment motivation is addressed. Studies suggest that music-based interventions may be used to enhance motivation of such persons. However, evidence of use of such approaches in Kenya was scanty. This study sought to test the effectiveness of Music-Based Intervention (MBI) in enhancing treatment motivation among clients in selected treatment centres in Kenya. The participants of this study were 40 clients in a residential treatment facility for substance use disorders. The facility had two branches (A and B) with similar admission procedures, programmes and with nearly similar geographical contexts. A quasi-experimental non-equivalent group pre-test and post-test design was used. Clients admitted to branch A served as the treatment group while those admitted to branch B were the control group. The treatment group received a four-week music-based intervention, in addition to the standard of care/usual services, while the control group received only the standard of care. A pre-test and a post-test assessment of treatment motivation for both groups was carried out using the Texas Christian University Self-Rating Form (TCU/SFR). Descriptive statistics such as frequency and percentages were used to describe data while analysis of covariance was used to test the hypotheses. Results showed that the treatment group had significantly higher levels of treatment motivation compared to the control group at post-test after statistically controlling for age and gender of the participants, among other covariates. This suggests that MBI may have been responsible for the higher treatment motivation in the treatment group. In terms of the TM components; problem recognition, desire for help and treatment readiness, the treatment group had significantly higher means when compared to the control group. Therefore, MBI had a significant impact in increasing TM and its components, namely problem recognition (PR), desire for help (DH) and treatment readiness (TR). This suggests that MBI may be a useful complementary intervention in enhancing treatment motivation and its components (PR, DH and TR) in the treatment of substance use disorders in Kenya, which in turn promotes clients' health outcomes.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, there is an ascent in instances of substance use related disorders. As indicated by the United Nations Office on Drug and Crime (UNODC) (2021), more than 275 million people worldwide, aged between 15 and 64 years had used drugs at least once in 2020. This population includes regular drug users. Worldwide, over 36 million drug users have substance use disorders (SUDs) or drug use dependence and, therefore, require treatment. This is a rise from 2018 where 35 million people had SUDs (UNODC, 2019). Their continued use of drugs comes with a risk of suffering from various cancers, heart and liver diseases, poor relationships, loss of jobs and sometimes death (Ritchie, 2019). This indicates the need for treatment, which places a major load on the health systems around the world.

Various reports show that many people are suffering from substance use disorders in different parts of the world. According to Substance Abuse and Mental Health Services Administration (SAMHSA) (2019), in 2018, about 20.3 million people in the United States of America (USA) aged 12 years and above had a substance use disorder where 14.8 million of them had an alcohol use disorder and 8.1 million had an illicit drug use disorder. The most common were marijuana use disorder (4.4 million) and the misuse of prescription pain relievers (1.7 million).

The number of people with substance use disorders seems to be lower in England compared to the USA. In 2016-2017, about 9% of adults aged between 16 and 59 years had taken an illicit drug. This is low compared to the global statistics as well as other countries such as the USA. However, the report notes that there was an increase in drug use among children where 24% of the pupils had taken drugs compared to 15% in 2014 (National Health Service, 2018). Findings of a report published at the United Kingdom's website suggested that in 2017, about 595,131 people above the age of 18 years had an alcohol use disorder (University of Sheffield, 2017). Furthermore, this report found out that between 2016 and 2017, some 146,536 people had presented with an opiate use disorder. Despite the lower figures compared to the USA, the number of people misusing drugs and suffering from substance use disorders is still big.

In Africa, the situation is similar to the rest of the world. Despite the effort to combat production and trafficking, misuse of licit and illicit drugs is still a challenge (African Union, 2013). Research in South Africa shows that alcohol, tobacco and cannabis were highly used (Heerden et al., 2009). In the World Drug Report (UNODC, 2019), it was discovered that in 2017 the use of opioids in Nigeria had increased by about 0.6 % from 0.3% in 2016. In Sierra Leone, high school students utilized marijuana, cocaine and heroin at 11%, 0.6% and 0.4% respectively (Harris et al., 2011). It is evident that drug and substance abuse is indeed a challenge in Africa.

In Kenya, the drug use situation is also of serious concern. The National Authority for the Campaign against Drug Abuse (NACADA) (2015) reported that youth between the ages 15-26 use drugs such as khat (miraa), alcohol, tobacco and cannabis (including

confectioneries laced with marijuana). In a different study conducted in Kajiado County, about 45% of youth between the ages of 10-24 were current users of at least one drug (Chege, 2015). This finding is high compared to the national statistics. These studies seem to show evidence of considerable use of drugs in Kenya. This means that there is a likelihood of an increase in substance use disorders (Muchemi, 2012). As a consequence, people who misuse drugs are in a constant risk of the negative impacts of SUDs such as mental disorders, damage of the physiological maturation of the brain, various types of cancers, poor family relationships, poverty and death (Muchemi, 2012; Mwithaga, 2013). There is, therefore, a need for increased effort to provide treatment to the people suffering from SUDs as a result of drug misuse.

The need for substance use disorder treatment has seen patients seek help in various treatment centres. The world drug report (UNODC, 2015) notes that only 16.7% of problem drug users have access to treatment services needed because many nations have a deficit of these services. The report further indicates that almost half of the people who seek treatment are first time entrants. This is an indicator of a new population seeking substance use disorder treatment.

This treatment of substance use disorders occurs in different settings. The settings include outpatient, hospital, and non-hospital residential (National Institute on Drug Abuse (NIDA), 2020). Outpatient settings offer low to moderate intensive care while the others offer high intensity programmes. These treatment programmes, specifically the non-hospital residential ones, offer services such as individual and group counselling and psychoeducation, among others. On the other hand, inpatient hospital SUDs treatment

settings focus on the management of withdrawal symptoms and co-occurring physical health conditions (Chase, 2001).

In a non-hospital residential treatment setting, clients live in a structured environment where they receive high intensity level of care. They stay for a relatively long period in this environment, compared to outpatient drug-free treatment centres. Some take about three months while others take longer. In these facilities, they focus on leading a drug-free life, and, acquire practical skills to help them function in society (Sisk, 1996). The current study was carried out in such a treatment setting (nonhospital residential treatment setting), where clients are offered psychosocial help in different forms. For clients to benefit from these programmes, they must desire to enter, remain and adhere to treatment. Their motivation for treatment is important for the preferred outcome, which is living a drug-free life and being functional in society.

However, globally, evidence suggests that there are challenges with motivation where some clients never enter treatment (Center for Behavioral Health Statistics and Quality, 2016). Others enter treatment and after a short while drop out (Day et al., 2011; Ramlaga et al., 2010; Substance Abuse and Mental Health Services Administration (SAMHSA), 2013). Other clients enter, remain but do not participate in treatment due to low motivation. Studies suggest that high motivation for change affects the behaviour of clients in treatment (Silverman, 2015). They stay in treatment longer, finish it and retain gains from treatment compared to the ones who report low motivation (DiClementi et al., 1999). They demonstrate improvement with regard to their drug problem (Shen et al., 2000).

Having low motivation for treatment may be detrimental to the recovery process. Literature indicates that about 50% of the clients with substance use disorder drop out of their detoxification treatment as a result of low motivation (Day & Strang, 2011). In another study on the reasons for drop out from drug use treatment, it was found out that motivation was mostly cited as the major factor (Ball et al., 2006).

In Africa, research also shows that low motivation is a challenge which often leads to clients dropping out of treatment. For instance, a study conducted in South Africa established that low motivation for treatment was a contributing factor in drug use treatment drop out (Ramlagan et al., 2010). In contrast, a different study showed that high motivation contributed to clients completing treatment with zero detection of drugs on urine tests during the completion of treatment (Gous et al., 2016).

In Kenya, while there is a paucity of data on the level of motivation for treatment among clients with substance use disorders, drop-out and relapse rates have been reported to be high. Githae (2015) found out that clients in inpatient treatment centres in the Nairobi County dropped out of treatment or relapsed with approximately 40% of alcohol use disorder patients being readmitted once and 45% readmitted twice for the same problem. This may be an indication clients' low motivation for treatment and change, which contributes to the continued drug use problem.

Behaviour change has been explained by various models, one of them being the stages of change posited by Prochaska and DiClemente (1984). According to them, the process of behaviour change, which in this case is cessation of drug use, occurs in stages. The first stage is pre-contemplation where the client is unaware that they have a substance use

disorder and, therefore, not ready to change. They may enter into treatment and at some point drop out of treatment due to lack of motivation for change (SAMHSA, 2013). The second stage is contemplation. In this stage, the client has insight of the problem and starts thinking of change in the near future (Prochaska & DiClementi, 1984). Despite their acknowledgement of the problem, the clients might still have low motivation for treatment since they might be merely considering change. At the preparation stage, which is the third stage, the client starts planning on stopping the use of drugs. They might consider entering into treatment and working through the treatment programme. At this point, there is need to boost their motivation in order for them to progress to the next stage of change. At the fourth stage, which is the action stage, the client starts making the specific desired changes by entering into treatment and working through the programme (Prochaska & Velicer, 1997). During the action stage, their motivation for treatment may be high. They will comfortably enter, remain and adhere to the treatment programme. Once they succeed working through treatment, they move to the fifth stage, maintenance stage. They work towards retention of the gains made during treatment by avoiding relapse into the use of drugs. In the sixth stage, the termination stage, clients have no temptations to relapse. They retain and adhere to the gains made during treatment.

Most clients in substance use disorder treatment centres are in the first three stages of change that are characterized by low motivation for treatment. Therefore, in order to help the clients, move through the first three stages of change, there is a need to enhance their treatment motivation.

Treatment motivation is conceptualized in terms of manifestation of problem recognition, expression of desire for help and readiness for treatment (Knight et al., 1994; Simpson et al., 2012). Treatment motivation influences the completion of treatment and maintenance of gains made during treatment by substance use disorder clients. People with low motivation have been found to drop out of treatment (Githae, 2015; Gossop et al., 2002; Ramlagan et al., 2010). The ones with high motivation participate in treatment, complete and maintain sobriety (DiClemente et al., 1999; Shen et al., 2000; Silverman, 2015).

One of the constructs of treatment motivation is problem recognition, which refers to the level of the individual's acknowledgment or denial of behavioural complications that may result from drug use (Knight et al., 1994). Clients with low problem recognition are usually at the pre-contemplation stage of change which is characterized by denial of the drug use problem (Holcom et al., 1994), hence the need to help the clients enhance insight into their problem, which is what this study sought to do. When they develop insight into their drug use problem, they move from the pre-contemplation stage to the contemplation stage of change. Studies have demonstrated that problem recognition and the perception of problems arising from drug use influences the client's stay in the treatment programme. It helps in retaining the gains made during treatment.

Once a person acknowledges the problem of drug use, he/she moves to the next phase of seeking help. Desire for help refers to the awareness of the intrinsic need for change and interest in attaining support (Knight et al., 1994). At this stage, the person starts contemplating making changes. They begin preparing for the change. They move from the contemplation towards action stage where they cognitively make preparations to enter

and participate in treatment (Holcom et al., 1994). A number of studies show that clients who reported a need for support were more likely to positively engage with clinical staff and participate in their treatment and as a result stay in for treatment until completion (Myers et al., 2010; Joe et al., 2014). This forms a cognitive foundation for one's engagement in treatment and maintenance of the gains made from participating in treatment. Thus, enhancing the clients' desire for help is of paramount importance in the journey of change, which is what this study sought to do.

Although one may acknowledge the problem that drug use causes in their life and may thereof perceive the need for help, they may not be ready for treatment. This could be because of their current responsibilities such as caring for their families or other reasons. Therefore, enhancement of treatment readiness, which refers to the level of commitment to effect change through involvement in treatment, is needed. It depicts a readiness to accept health and the willingness to actively participate in the treatment process. People with high treatment readiness start preparing to seek treatment of the substance use disorder, which will in turn assist in making real changes towards sobriety. At this point, they start moving towards the action stage. Research shows that treatment readiness predicts success of treatment (Carbonari & DiClemente, 2000; Schlosser et al., 2008). Other studies have also found that treatment readiness increases the chances of staying and completing treatment (Myers et al., 2010). When one is high on the three indicators, they are said to have high motivation for treatment for substance use disorders.

With this in mind, it is critical to remember that low treatment motivation has a major role in poor treatment outcomes among the clients. There may be little or no progress on

their substance use disorder problem. This means that the clients may drop out of treatment and/or relapse into drug use (Gossop et al., 2002). As a result, they suffer the consequences that come with the use of drugs (Muchemi, 2012; Mwithaga, 2013). Therefore, in order to help the clients out of the substance use disorder problem, there is need to address treatment motivation.

In addressing treatment motivation problem, many of the interventions are mainstream and focus on verbal therapy. While they have been useful, there has been advocacy on alternative therapies. Various Complementary and Alternative Medical (CAM) interventions have been used to enhance treatment motivation among substance use disorder clients. CAM interventions are non-mainstream treatments that are used to complement the conventional ones (National Centre for Complementary and Alternative Medicine, 2013). One such intervention is music-based (MBI). It ranges from music therapy, which is viewed as a clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a music therapist credentialed professional (America Music Therapy Association (AMTA), 2020), to other music-based interventions that are 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). The latter definition is used in this study. According to the American Music Therapy Association (AMTA) (2014), the use of music has resulted in more efficient responses to the overall intervention plan among different clients, including those with substance use disorders.

While few studies have been conducted on the effectiveness of music-based interventions in enhancing treatment motivation among clients with substance use disorders, different music-based interventions have been used in other ways such as enhancing self-awareness and as a safe way of exploring hidden feeling, both of which are important in augmenting treatment motivation (Wigram et al., 2002). These interventions have also been found to be effective in treating stress and anxiety (Burns & Woolrich, 2008) in addition to providing a mode of self-expression. Thus, they create a therapeutic environment that is suitable for exploration of thoughts and emotions, which is important for enhancing the client's treatment motivation.

Music-based intervention has further been shown to create positive emotions among clients (Williams, 2019). The therapist's use of music creates an enabling therapeutic environment for motivating the client from one stage of change to another, for instance, from pre-contemplation to contemplation in the treatment of substance use disorders. Williams (2019) notes that music affects brain waves, making clients more alert and relaxed, which is essential, for engagement in treatment.

Furthermore, music-based interventions have been used in modifying behaviour (Jurgensmeier, 2012). Music has a motivational role that is based on both its internal and external factors such as rhythm, melody, harmony, lyrics, cultural influence and extra-musical associations (Karageorghis & Priest, 2012). These motivational qualities of music ensure its effectiveness in changing maladaptive behaviours and reinforcing positive ones. Cognitive-behavioural techniques have been combined with music to help in change of behaviour and thought processes. Some of the techniques used include

prompting, modeling and reinforcement. The combination of behavioural and musical interventions allows the therapist to deal with a wide range of negative problems related to substance abuse in a unique way (Standley et al., 2008). They enhance client's positive behaviour and increase their participation in treatment and recovery (Dingle et al, 2008).

As a therapeutic tool, music has been used in substance use treatment in different parts of the world (Silverman, 2015; Standley et al., 2008). Unlike when clients are in active addiction, research shows that music-based interventions can be helpful in exploring emotions, without the use of drugs, and also facilitate engagement in this process (Dingle et al., 2008). Some studies have also compared music-based with other interventions such as talk therapy and found out that MBI may be viable in the treatment of different conditions like substance use disorders, depression and anxiety (Cevasco et al., 2005; Jones, 2005).

In line with this, music-based intervention has been used to enhance treatment motivation. Different studies done in the USA found out that music therapy intervention helped in the enhancement of treatment motivation among substance use disorders patients (Baker et al., 2007; Silverman, 2015). Dickerson and colleagues (2012) also found that music-based intervention increased motivation to treatment among clients with substance use disorders.

In another study, Silverman (2009b) compared the effectiveness of verbal therapy and music therapy in a detoxification unit in a single session. The researcher found out that the music intervention may be as viable as talk therapy in enhancing treatment eagerness/readiness to change and working alliance. Although the differences between

the two modes of therapy were not significant, the experimental group receiving music therapy had marginally higher scores than the control group. Other studies did not find significant differences (Jones 2005; Silverman, 2011). The inconsistent findings indicate a need for more studies on the effectiveness 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 at a detoxification centre and in a single session.

Other studies conducted outside USA showed that MBI was effective in the treatment of mental health care patients. In Australia, MBI was effective in enhancing treatment motivation among mental health patients, including the ones with substance use disorder (Gold et al., 2013). Among the adults with a dual diagnosis, music therapy has been used to enhance their motivation. For instance, Ross et al. (2008) conducted a study among clients with dual diagnosis of substance use disorder and other mental illnesses and found that music therapy helped in enhancing their motivation. This study however, did not have a control group.

In the treatment of substance use disorder clients, music-based interventionists employ different techniques, which are divided into two categories based on the client's involvement; receptive and active interventions. Receptive techniques involve the clients listening to the music and reacting to the experience silently, verbally, or through dance (Gómez-Gallego et al., 2021). The clients are mainly more of listeners than performers. Some of the goals of receptive techniques include relaxation or stimulation, evoking memories, enhancing the client's mood and stimulate self-knowledge. With such goals

music-based interventions would be helpful in enhancing treatment motivation which involves enhancing the clients' moods and self-awareness. Receptive techniques include receptive listening, music imagery, lyric analysis/discussion and drumming with recorded music.

On the other hand, active music therapy techniques are more engaging and involve both the therapist and the clients making music by singing, chanting, playing musical instruments, writing music or improvising (Silverman, 2015). In this case, both the therapist and the client collaborate in the therapeutic process, which empowers them to create a stronger interpersonal relationship. Examples of expressive techniques include improvisation, songwriting, drumming and music performance (Atiwannapat et al., 2016).

Some of these techniques focus on the behavioural aspect of treatment. Lyric analysis is one of the techniques that has been shown to be effective. It can be defined as a psycho-social music therapy intervention that assists clients in identifying personal issues, exploring emotions and relating to the experiences of others (Miller, 2019). Some researchers note that some lyric analysis programmes capitalize on psychotherapeutic and cognitive behavioural music therapy tenets (Choi et al., 2009; Silverman, 2009a). In such programmes, 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 and an enhancement of self-awareness (Jurgensmeier, 2012) which is vital in enhancing treatment motivation. During lyric analysis, they are able to express their perspectives about the lyrics of a song. Self-expression enables the therapist to get into the client's

world view, which can be vital in changing negative thought patterns and behaviours as emphasized by the cognitive behaviour model. Through self-expression, the client may also experience catharsis which is part of a therapeutic experience posited in psychoanalysis while the therapist understands the client's thought process. Self-awareness, on the other hand, enables a client to make changes in his or her behaviour since he or she evaluates it vis-à-vis his or her internal standards, as noted by Duval and Wicklund's (1972) self-awareness theory. Thus, through self-expression and enhancing self-awareness, lyric analysis lays the ground for change of the clients' perception of their behaviour, which is important in the enhancement of treatment motivation.

Literature shows that lyric analysis has been used to increase clients' treatment eagerness and readiness to change (Silverman, 2009b) as well as motivation to treatment (Silverman 2015b). These studies (Silverman, 2009b; 2015) were done in a detoxification centre in a single session. The current study, however, sought to find out whether lyric analysis would enhance treatment motivation among clients with substance use disorder in a long-term inpatient facility and would use four sessions.

Lyric analysis has been combined with other interventions to enhance treatment motivation. For instance, lyric analysis was combined with the artist's/band's history of substance abuse (rockumentary). Silverman (2011) conducted a study with three groups where two groups received rockumentary music therapy and recreational music respectively, while one received verbal therapy. He found that the music therapy groups (rockumentary and recreational music therapy groups) had slightly higher mean scores for motivation for change than the verbal therapy group but these differences were

insignificant. The current study sought to find out whether lyric analysis would have a different effect on treatment motivation excluding the artists'/band's history with substance abuse. The band's history with substance use and their recovery may have a confounding effect as studies show that success stories may influence action to change among clients. It would, therefore, be interesting to find out whether there would be significant differences between a group that receives lyric analysis together with standard care and one that only receives the standard care.

1.2 Statement of the Problem

Although rehabilitation is among the effective treatment modes for substance use disorders, it is affected by clients' motivation for treatment. Current data on rehabilitation outcomes points to high relapse rates in Kenya, which may be indicative of low treatment motivation (Githae, 2015). Low motivation for treatment was associated with non-compliance to treatment programmes, the risk of dropping out and subsequently relapse. This was despite the implementation of conventional interventions in the treatment centres. If relapse is not prevented, the clients will continue using their drugs of choice and hence suffer the consequences that come with continual use such as various types of cancers, mental health disorders, damage of the physiological maturation of the brain, poverty, poor parent-child relationships, poor spousal relationships, among others (Muchemi, 2012; Mwithaga, 2013).

Complementary and Alternative Medicine (CAM) interventions such as music-based interventions (MBI) have been shown to be effective in enhancing treatment motivation in some studies in western countries (Baker et al., 2007; Silverman, 2015). There was

scarcity of data in Kenya on the use and effectiveness of such interventions to address low treatment motivation among clients in substance use disorder treatment centres. Therefore, there was a need to test whether interventions such as MBI would be effective in enhancing TM among clients with SUD in different geographical regions considering most studies on the same have been done outside Africa.

It is also critical to note that some studies done before in western countries showed no significant differences on the effect of music-based interventions (Jones, 2005; Silverman, 2011). This depicted inconsistent findings. Thus, there was need for more studies to add on to the body of evidence. In addition, most of these studies were conducted in a single session. There was need to find out whether there would be a difference if music-based intervention was conducted in more than one session. It was these gaps in literature and practice that informed the need for this study.

1.3 Purpose of the Study

This study sought to determine the effectiveness of music-based intervention in enhancing treatment motivation among clients in selected substance use disorder treatment centres in Kenya.

1.4 Objectives of the Study

1.4.1 Specific Objectives

1. To determine whether there are significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

2. To find out whether there are significant differences in problem recognition (PR) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.
3. To determine whether there are significant differences in the desire for help (DH) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.
4. To find out whether there are significant differences in the treatment readiness (TR) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

1.5 Hypotheses

H₀1: There are no significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

H₀2: There are no significant differences in the problem recognition (PR) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

H₀3: There are no significant differences in the desire for help (DH) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

H₀4: There are no significant differences in the treatment readiness (TR) aspect of treatment motivation between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

1.6 Justification and Significance of the Study

There was evidence of low TM among clients in substance use disorder residential treatment centres in Kenya, which was associated with non-compliance to treatment programmes, risk of dropping out and subsequently relapse. This was despite the implementation of conventional interventions in the centres.

Little had been done in the use of complementary and alternative interventions such as music-based interventions (MBI) in Kenya, to address low treatment motivation among clients in substance use disorder treatment centres. This is despite there being evidence of its efficacy in other parts of the world. There was, therefore, a need to test whether interventions such as MBI would be effective in enhancing TM among clients with SUD in a different geographical area such as Kenya. It was this gap that the study sought to fill.

In addition, the researcher sought to use music-based intervention using the lyric analysis technique to create a complementary and experiential tool that may enhance treatment motivation. Lyric analysis was chosen as it provides an opportunity for the therapist to get into the lives of the clients. Through song lyrics, the client can talk about themselves and their emotions in a way that is safe (Ahmadi, 2011). Furthermore, lyrics have perceptual process words that help the clients perceive what the songwriter or the main

character was feeling or experiencing and thus connect the same to their own personal experiences (Miller A. M., 2017). The songs are written in a personal and authentic way which provides the clients with a safe tool through which they can use to examine their own lived experiences.

The findings of the study supported the transtheoretical model of change. It is possible that there was change in treatment motivation because the participants (experimental group) were exposed to music that was thematically based on the process of change which is a tenet of the transtheoretical model of change. Therefore, the theoretical significance of this study is that it provides evidence that the transtheoretical model of change may be used to enhance treatment motivation among populations in developing countries such as Kenya and within the music-based intervention framework.

In terms of practical significance, this study may provide counsellors and addiction therapists with a non-talk modality of enhancing treatment motivation. The findings would provide evidence for the use of a complementary and alternative intervention, specifically MBI for enhancing TM among clients with SUD that would complement the conventional talk therapy commonly used in treatment centres in Kenya. In addition, this study benefits the clients by providing them an alternative way of processing and expressing their thoughts and emotions. It also provides a foundation for further research on the effectiveness of interventions used in treatment centres. Researchers can also use it as a basis for further studies on the effectiveness of experiential modalities in addiction treatment.

1.7 Scope and Limitations of the Study

This study focused on substance use disorder clients within inpatient treatment centres in Kenya. It included both male and female clients who met the inclusion and exclusion criteria in the treatment facilities. Only volunteers were included.

The variables in the study were music-based intervention and treatment motivation. Music-based intervention was the independent variable while the treatment motivation was the dependent variable. This study, conducted in four weekly sessions, sought to investigate whether music-based intervention would enhance treatment motivation among clients with substance use disorder in selected treatment centres in Kenya.

This study was conducted in 2019, and was limited to clients who were 18 years of age and above since they have the ability to give informed consent. In addition, the study was limited to one treatment institution in Kenya with facilities in different locations. The treatment center's facilities that were involved in this study are situated in Kiambu and Kajiado counties. Since the study was limited to only one treatment institution, the results should be generalized to other populations with caution.

The quasi-experimental design specifically pre-test and post-test non-equivalent groups design was used establish the effectiveness of music-based intervention on treatment motivation among substance use disorder clients in the selected treatment centres. Due to lack of randomization, there were challenges of selection bias. Effort was made to eliminate this threat to internal validity by ensuring that the participants were similar in terms of age group, co-morbidities and gender in both groups. They were all undergoing treatment for substance use disorder, had been in the treatment centre for not more than two months and received the same standard of care. As the research was using music-

based intervention, there was a possibility of biased music selection by the clients. This may have affected their participation. This limitation was checked by selecting music from popular genres with the same themes to this study. In addition, the researcher did not establish the long term effectiveness of the music-based intervention since the post-test was done after four weeks of the intervention on the experimental group.

1.8 Assumptions of the Study

In carrying out this research, several assumptions were made. First, it was assumed that the music-based intervention would bring change to the level of treatment motivation among the participants.

Secondly, it was assumed that the levels of the three components of treatment motivation, namely problem recognition, desire for help and treatment readiness, would change after the participants were exposed to the MBI. Thirdly, it was assumed that the clients gave honest and objective responses to the items in the questionnaire.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this section, the researcher described the theory that was used to guide the study and reviewed literature on the effectiveness of music-based intervention on treatment motivation among SUD clients in treatment centres. The researcher then, outlined the conceptual framework of the study. This chapter commenced by discussing the theoretical foundation and subsequently proceeded to critically review related literature and the conceptual framework.

2.2 Theoretical Framework

The quasi-experiment research was based on the possibility of enhancing motivation throughout the change process in treatment. For this reason, the transtheoretical model of change (TTM) was chosen to guide this study. The following section is a discussion of this model.

2.2.1 Transtheoretical Model of Change

Transtheoretical model of change was postulated by Prochaska and DiClementi (1984) to explain the change process. It was developed using various theories as the proponents argued that there is no single theory that can account for all the nuances of behaviour change. TTM suggests that change of behaviour involves a process of progress through six stages of change: pre-contemplation, contemplation, preparation, action, maintenance and termination.

In the pre-contemplation stage, people have no intention of changing the risky behaviour in the foreseeable future (six months). They deny having a problem. When they attend any therapy, it is not out of their motivation but that of family, friends and employers among others (SAMHSA, 2013). For this reason, consciousness-raising of their problematic drug use is recommended in order to enhance awareness of their problem use. This may influence their motivation towards treatment. The MBI sought to raise awareness of the clients through analysis of lyrics of a song with a theme on raising awareness of the substance use problem.

Contemplation is the second stage where one starts thinking of changing their behaviour in the foreseeable future (six months) (Prochaska & DiClementi, 1984). In the pre-contemplation stage, people may be uninformed or under-informed about the impact of their actions. In the contemplation stage, people are more aware of advantages and disadvantages of change. This balance between the pros and cons of substance use may cause ambivalence and hence the need to enhance their motivation for treatment (Prochaska & Velicer, 1997). The researcher sought to help the clients discuss discrepancies in their lives through the analysis of a song and come up with a decision that upholds the pros and thus motivate them to move to the next stage in the process of change.

The next stage is preparation where the people with substance use disorder intend to act against the unwanted behaviour in the near future (one month). Such people have a plan such as joining a substance use disorder treatment centre. There is need for enhanced motivation towards treatment, both from the self and others, on the decision.

After the preparation stage, people get into the action stage where they make specific explicit changes by reducing the use of drugs within the past six months (Prochaska & Velicer, 1997). Part of the modification of the client's behaviour is abstinence from drug use. This change comes as a result of having high treatment motivation which helps in the retention of gains made during treatment. The MBI was designed to help the clients move towards making changes through helping them believe and acknowledge their ability to change by engaging and actively participating in the treatment process.

This is reflected in the next stage; maintenance stage, where people work to avoid relapse. The more confident and highly motivated people are, the more they continue making and maintaining the changes achieved. Lastly is the termination stage. In this stage, people have no temptations to relapse. Their self-efficacy is high. With MBI seeking to enhance the clients' motivation coupled with helping them develop self-belief and self-efficacy, they were likely to maintain the changes made. Most people in treatment centres; perhaps, are in the first three stages of change. There is a need to enhance their motivation towards progress in the stages of change. It is critical to note that some are in the action stage where they still need the motivation to continue with behaviour modifications.

Another construct of the Transtheoretical model of behaviour change is the process of change (Prochaska & DiClementi, 1984; Velasquez et al., 2005), which refers to the implicit and explicit activities that people use to progress through the stages. There are 10 activities which comprise consciousness raising, dramatic relief, self-evaluation, environmental evaluation, self-liberation, social liberation, counter conditioning, stimulus

control, contingency management and helping relationships. Consciousness raising refers to enhancing awareness of the causes, consequences and solutions of the problem experienced by the clients (Prochaska and DiClemente, 1984). In this case, the clients may enhance their awareness on the causes and challenges that are brought about by the continuous use of their drug of choice. They may also be informed of the possible solutions to the substance use challenge. Dramatic relief on the other hand is meant to produce enhanced emotional experiences which are followed by reduced affect if the client reduces or stops the use of their drug of choice. The MBI during lyric analysis offered an opportunity for the clients to give their personal testimonies on how drug use has affected their lives. Self-evaluation invites the clients to assess their self-image and general life (Velasquez et al., 2005) in relation to the use of drugs. They are asked to reflect on whether the use of their drug of choice has been effective in making their life better or more challenging. On environmental evaluation, the clients were supposed to assess how the drug use behaviour has affected their social environment. This could be its effect on close relations, colleagues at work among others. During lyric analysis, the clients had an opportunity to evaluate their use of drugs and how it has affected their social environment, including whether the behaviour was likely to bring people close to them or strain relationships. The MBI was anchored on some of these processes of change as well as other major tenets of the transtheoretical model of change to motivate the clients who were in the various stages of change to progress in the change process through engaging in treatment. For instance, 'consciousness raising' is crucial especially among clients in the pre-contemplation stage. Once they gain insight on their drug use

problem, they can move to the contemplation stage where they may consider making the necessary changes.

Decisional balance is another tenet of the model. It is the client's considerations of the pros and cons of changing (Velasquez et al., 2005). This is where the clients in the treatment centres consider the advantages and disadvantages of changing their behaviour in order to resolve ambivalence. This is characteristic of clients in the contemplation stage. If the advantages outweigh the disadvantages (high decisional balance), there is a high probability of motivation to treatment. If the disadvantages outweigh the advantages (low decisional balance), there is a probability of low motivation to treatment. The awareness of the pros and cons of substance abuse in relation to the discrepancies or problems in their lives can make clients with SUD consider changing their behaviour. Therefore, this can be a source of motivation for them. Since decisional balance is beneficial in enhancing motivation, MBI was designed to help them evaluate the pros and cons of substance use and point out discrepancies observed in their lives. This would be helpful in making the decisions about treatment.

The transtheoretical model of behaviour change integrated self-efficacy from Albert Bandura's self-efficacy theory. For Prochaska and DiClementi (1984), self-efficacy is the situation specific confidence people have that they can cope with high risk experiences without relapsing to drug use. This tenet underpins a person's ability to change. This belief in a person's ability to change is important in motivating clients with SUD to change. Some of them believe that they may never be able to abandon their dysfunctional behaviour. The distorted belief may hinder clients who are willing to change. It is,

therefore, important to enhance their self-belief, which will in turn motivate them to engage in treatment. In addition, when confronted with difficult situations, temptation manifests through the power of urges to engage in substance use. According to this model, there are three factors that evoke the most common types of tempting situations: negative affect/emotional distress, positive social situations and craving (Velasquez et al., 2005). These are the common situations in which most drug users are tempted to use their drugs of choice. Identifying them may help in coming up with healthier ways of dealing with them. This may enhance their motivation to working through treatment because they develop alternative ways of dealing with problematic situations. The transtheoretical model of change within which the MBI is anchored is rich with concepts that may be used to enhance motivation to treatment such as the process of change, decisional balance and self-efficacy. The MBI sought to bring to life these concepts in a safe and experiential way to enhance motivation among clients in a substance use disorder inpatient facility.

2.3 Review of related studies

This section dealt with a review of literature related to the effectiveness of music-based intervention on treatment motivation among substance use disorder clients in treatment centres. Literature on the effect of music-based intervention on SUD treatment was first reviewed. It was then followed by a critical review of literature on the effectiveness of music-based intervention on treatment motivation among substance use disorder clients. The researcher then proceeded to review literature on the effectiveness of music-based intervention on the constructs of treatment motivation, namely problem recognition, desire for help and treatment readiness.

2.3.1 Music-based Intervention in Substance Use Disorder Treatment

Music-based intervention is one of the complementary and alternative medical (CAM) practices that have been used in the addiction treatment edifice. CAM refers to non-mainstream interventions that complement or substitute the traditional conventional interventions (National Centre for Complementary and Alternative Medicine, 2013). CAM has been useful in providing a complementary and alternative mode of treatment of different conditions. In the substance use disorder treatment structure, a number of CAM interventions have been used. Among these alternative practices is MBI which is defined as the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a therapist (Hohmann et al., 2017). In line with this, MBI has been observed to help clients in tapping into emotions and needs that might be hard to express through the conventional forms of communication. It motivates them to engage in treatment (Aletraris et al., 2014).

In treatments modalities that involve the use of MBI, clients go beyond listening to music. Various elements of music are used in the therapeutic environment to influence the clients' state of being. A number of studies show that different elements of music such as melody, rhythm, timbre, tempo and lyrics have an effect on human emotions. In a study conducted among a healthy sample population of Americans of different ages (18-30 and 58-70 years), it was established that participants identified similar emotions: happiness, sadness, anger and fear, when a particular melody was played despite their age (Hailstone et al., 2009). This is testament that various elements of music can evoke emotions that are commonly identifiable by human beings and thus, it may be used to influence the emotions of a human person. The current study only focused on the analysis

of lyrics and not the other elements of music such as melody, rhythm, timbre and harmony, among others.

With the beneficial effect of music in mind, MBI practitioners have used it in treatment of various psychological conditions. They go beyond identification of clients' emotions and critically evaluate their emotions, motivations and hurdles to recovery through lyrics (words to the song), rhythm and melody (American Music Therapy Association, 2014). A number of studies seem to support this. Baker et al. (2007) carried out a research on music therapy (MT) and emotional exploration with an aim of exposing 24 adult substance use disorder clients to the experience of non-drug-induced emotions. In this study, they coupled music therapy with a cognitive behaviour therapy (CBT) programme where they had single sessions with each individual participant. They found out that music therapy was beneficial in enabling them to experience emotions without the need for drug use. Such an intervention is helpful for clients as it facilitates a critical examination of negative emotions in a safe therapeutic environment, which is important in the treatment of substance use disorders. In the current study, since the MBI used music, it is possible that clients with SUD were able to explore negative emotions evoked by their negative experiences in a non-threatening way.

MBIs have also been used within ideological frameworks such as motivational interviewing and motivation enhancement therapy to resolve ambivalence among clients with substance use disorder. In a review of studies on natural and complementary therapies for substance use disorders, Dean (2005) found out that there were a number of studies that had used MBI within the motivation enhancement therapy (MET) framework.

The findings of this study showed that music-based intervention may be effective in enhancing intrinsic motivation. However, the researcher noted that there was need for more clinical trials on complementary therapies to support their use. The current study sought to add on to the body of evidence on the effectiveness of music-based intervention on treatment motivation.

Clients with substance use disorders have also benefited from music therapy. An analysis on the use of art and music therapy in substance use disorder treatment programmes found a positive and significant association between requiring 12-step meetings as part of treatment and the use of art and music therapy (Aletraris et al., 2014). In this study, clients who had an opportunity to participate in the music-based interventions combined with the 12-step meetings seemed to participate more in treatment thus enhancing it.

In addition to the above benefits, MBI has positive effects on mood (Shuman et al., 2016); stress (Pelletier, 2004); self-esteem (Sharma & Jadgev, 2012) and social cohesion (Goodling, 2011). It has also been shown to improve enjoyment, helpfulness and the locus of control in a systematic review of studies on music therapy and music-based interventions in the treatment of substance use disorders (Hohman et al., 2017). With the cited benefits, music-based intervention appears to address some of the challenges found in the treatment of SUDs which in some cases demotivates the clients from engaging in treatment.

Even with many studies finding positive and significant effects of MBIs on various aspects of substance use disorder treatment, some studies did not. Several studies conducted by Silverman (2010, 2011 & 2016) on craving and/or withdrawal in substance

use disorder clients found no valuable effects of music therapy. In a different study that enquired whether music can act as an auditory cue for emotions and cravings among adult clients with substance use disorders, it was revealed that listening to music linked to their (participants) substance abuse increased cravings for their drug of choice (Short & Dingle, 2015). This study was conducted in Australia among 19 adult participants with a mean age of 31. This study showed that music can be a risk factor for relapse. It increased cravings among substance use disorders clients. Therefore, caution should be taken while considering songs for therapy.

Apart from MBI being employed in substance use disorder treatment, it has also been applied in the treatment of other disorders to enhance functioning in clients suffering from anxiety and depression. Trimmer et al. (2016) conducted a study dubbed cognitive behaviour therapy-based music group (CBT-Music) for symptoms of anxiety and depression. They used music to deliver CBT among clients in the experimental group. The ones in the control group received treatment as usual (TAU). TAU involved regular follow up with a case manager and regular psychiatric appointment. They found out that there was a significant increase in functioning among participants in the music group (experimental group) compared to the ones in the control group that received TAU. The researchers also noted that the participants came up with group guidelines such as one person singing at a time and punctuality. Although these were not part of their study objectives, they were observed in the nine-week programme. This study may indicate that music-based interventions may be used to instill some sense of pro-activeness among the people suffering from depression, which increases their functioning.

With the above review of literature on the effects and effectiveness of music-based intervention, it is evident that a spectrum of MBIs has had beneficial effects in the treatment of mental disorders such as depression and various aspects of substance use disorders. It has also been shown to be effectual in dealing with several psychological aspects of a human person such as mood, stress, self-esteem and social cohesion. However, some studies have shown no significant benefits of music-based interventions on SUD clients. With such inconsistent findings, it is important for more studies to be carried out to clarify MBIs effectiveness as an alternative practice in the treatment of SUD. In line with this, the current research sought to find out the effectiveness of MBI on treatment motivation among clients in selected inpatient substance use disorder treatment centres in Kenya. The next section reviews literature on the effect of MBI on treatment motivation and its indicators.

2.3.2 Music-based Intervention and Treatment Motivation

Motivation often influences the trajectory one takes in the change of behaviour. This is also observed in the treatment of substance use disorder where clients need to change their lives to one of sobriety. Motivation to treatment has various aspects, namely problem recognition, desire for help, and treatment readiness (Knight et al., 1994). When one has high scores on these three aspects, they are said to have high treatment motivation (TM). When one is low on these aspects, they are rated as having low TM.

As stated earlier, TM has been shown to be one of the important ingredients in change of behaviour and more so, in the treatment of substance use disorders. It influences one's decision to seek and engage in treatment interventions. At the end, TM is said to have an

impact on a person's retention of the treatment gains and general change of behaviour (Groshkova, 2009). The enhancement of TM targets the development of internal rather than external motivation. Internal motivation is viewed as the pressure to change, which comes from the individuals themselves while external motivation refers to perceived outside pressures or coercion to change, or to enter and remain in treatment (De Leon et al., 2001). Thus, this study focused on helping the client develop internal drive (internal motivation) to change.

To achieve this, the focus is directed at helping the clients move forward in the treatment motivation continuum by enhancing their insight into their substance use problem and the need for help. Once they are aware of their need for help, then they can be assisted to prepare for treatment. In terms of the theoretical model for change this is viewed as helping the client move to the action change, where they enter treatment, participate in the programme, and retain the gain made.

Treatment motivation is one of the predictive factors of successful outcomes in SUD treatment. Clients with high treatment motivation have been shown to stay longer, complete and maintain the benefits accrued in the SUD treatment facility (DiClementi et al., 1999). The ones with low motivation are associated with poor engagement with the therapeutic programme (Joe et al., 2014) which in turn results in poor treatment outcomes (DiClemente et al., 1999).

This view is supported by a randomized controlled trial conducted by Day and Strang (2011) on the likelihood of clients completing detoxification programmes in different settings in community treatment centres in Birmingham in the United Kingdom (UK).

They randomly assigned 68 opioid dependent clients to either inpatient or outpatient setting. They found that more inpatients (51.4%) completed detoxification than outpatients (36.4%) who dropped out. The dropped outs cited low motivation for treatment. Even with the outside pressures or external motivation for change, one has to be self-motivated or internally motivated for recovery and sustained change (Garnick et al., 2012).

Similar results were established by a study that sought to investigate the patterns, distribution and determinants of health among drug use inpatients in South Africa (Ramlagan et al., 2010). There were various groups of participants in this study. Among them were 21 key informants that comprised substance abuse provincial coordinators and managers of treatment centres. They were interviewed to find out the reasons for high treatment dropout rates. Ramlagan and colleagues found out that low treatment motivation was cited as a contributing factor to treatment drop out. This shows the importance of focusing on treatment motivation in the treatment of substance use disorders as it is a determinant of success.

In Kenya, high dropout rates were reported and most often, the clients would relapse to drug abuse. For instance, a study conducted by Githae (2015) on the relationship between family expressed emotion and relapse occurrence among 186 clients with alcohol use disorder in Nairobi County, found that about 40% were in their second or third admission due to relapse. This could be an indication of low treatment motivation, among other factors.

It has been shown that clients with high treatment motivation have better treatment outcomes. They join treatment, engage in the treatment programme and retain the benefits accrued during treatment (DiClemente et al., 1999). Therefore, there was need for interventions that would enhance treatment motivation to reduce treatment dropout and relapse rates.

To address low motivation to treatment, researchers and clinicians have used various types of interventions, among them the complementary and alternative medicine (CAM) interventions which are non-mainstream treatments that are used instead of traditional conventional treatment (Fan, 2005). One such intervention is the music-based intervention (MBI).

Literature shows that MBIs are effective tools in enhancing treatment motivation. A study that involved focus group discussions used drumming as a music therapy technique among American Indians/Alaska Natives (AI/AN) with substance use disorders. Dickerson et al. (2012) developed the Drum-Assisted Recovery Therapy for Native Americans (DARTNA) programme which was a culturally based behavioural therapy. The researchers incorporated elements of other treatment programmes such as the 12-step principles, talking circles and the medicine wheel. They engaged three focus groups to discuss the general impressions of the treatment protocol. The focus groups included American Indians/Alaska Natives (AI/AN) suffering from substance use disorders among other groups. The DARTNA intervention was administered to the AI/AN in three-hour bi-weekly sessions for 12 weeks. They found out that the intervention increased the

participants' motivation for treatment. The researcher noted that unlike the current study, the DARTNA intervention only involved drumming as a music therapy technique. The current study, however, used lyric analysis technique and sought to find out whether it would give similar results within a shorter period of four weeks. It also used a number of instruments (acoustic guitar, djembe drum and a tambourine) during the live presentation of the songs.

A different randomized clinical trial sought to find out whether lyric analysis was an effective intervention on treatment motivation (Silverman, 2015). The study was conducted in the Midwestern United States using a two-group wait-list design. It had 104 participants. The 104 participants were randomly assigned to two groups: experimental and control. The intervention was administered to the experimental group in a single session and tested only after the intervention (post-test only) while the control/wait-list group was only tested at pre-test and later received the intervention. The researcher found out that the difference in the scores of the experimental group's post-test and the control/wait-list group's pre-test was significant. The experimental group scored higher on treatment motivation than the control group. It was interesting to find out whether similar results would be found in an inpatient treatment centre. The researcher also notes that this study was done in the USA and, therefore, wanted to find out whether music-based intervention would produce similar results in an African population, specifically in Kenya, using four-weekly sessions. In addition, the current study used a non-equivalent control group pre-test-post-test quasi-experimental design that gave the researcher a possibility of comparing the level of TM before and after the intervention and compare it to a control group that only received the standard of care.

A similar randomized clinical study was conducted in China among female patients with methamphetamine use disorder to find out whether group music therapy was effective in enhancing treatment motivation, among other factors (Wu et al., 2020). Wu and colleagues sampled 60 participants who were randomly assigned to the experimental group that received group music therapy and the standard of care in 13 sessions. The control group only received the standard of care. At post-test, a significant effect on treatment motivation was established on the music therapy group compared to the control group. The experimental group had a significantly higher score on motivation for treatment than the control group. This Wu's study focused on female clients only and specifically those with methamphetamine use disorder. The current study, on the other hand, included clients with different categories of substance use disorders.

Other studies have used individual music therapy sessions to enhance treatment motivation among clients with substance use disorders among other mental health conditions. For instance, a pragmatic single-blind multi-centre randomized trial was conducted among 144 clients with substance use disorders and other mental illnesses in mental health hospitals across three countries: Norway, Australia and Austria (Gold et al., 2013). They were randomly allocated to either the experimental or the control group. Individual music therapy, specifically the resource-oriented music therapy programme, was administered together with treatment as usual (TAU) to the treatment group in two 45-minute individual music therapy sessions per week for three months. The control group only received treatment as usual. TAU included the available medical and non-medical treatment as recommended by the multi-disciplinary team at the institutions where the participants received their mental health care. This excluded any participants

that received music therapy outside the study. Gold and colleagues found out that the treatment group had significantly higher levels of motivation to therapy compared to the control group. The current study focused on inpatients clients and utilized music-based group therapy sessions unlike the study by Gold et al. (2013). In addition, the current study used lyric analysis technique as the main intervention to enhance treatment motivation.

Literature shows some inconsistency on the effectiveness of music-based interventions in enhancing treatment motivation among clients with substance use disorders (SUD). Some studies show that music-based interventions were not effective in enhancing TM. For example, in a study conducted in the USA on the effects of music therapy on readiness to change and craving, Silverman (2011) sought to compare three interventions namely: verbal therapy, rockumentary music therapy and recreational music therapy among clients with substance use disorders in a detoxification unit. The study's 141 participants were randomly assigned to the three groups (rockumentary music therapy, verbal therapy and recreational music therapy conditions). The rockumentary music therapy included lyric analysis and rockumentary (a history of the band and its members' struggles with substance abuse). He found significant between-group differences in contemplation and action sub-scales with participants in the experimental groups (music therapy groups) having higher means compared to the ones in the talk therapy group. This depicts an increase in motivation reflected in the upward movement in the change process. However, this increase in motivation among the participants in the music therapy group was not significantly different from the ones in the talk therapy group. The music therapy groups had marginally greater scores in the Likert-type ratings of motivation to change.

The rockumentary intervention included the story of the band in relation to substance abuse, which may have played a part as a confounding factor in influencing the results. A three-group post-test only design was used in the study. The current study on the other hand, used lyric analysis as the primary intervention and statistically controlled for other confounding variables to examine the effectiveness of music-based intervention on treatment motivation. Furthermore, unlike Silverman's study, the current study used a non-equivalent control group pre-test and post-test quasi-experimental design which allowed the researcher to compare the level of treatment motivation before and after the MBI.

Another study that sought to compare songwriting and lyric analysis techniques to evoke emotional change in a single session was conducted among 26 clients with chemical dependence in the USA (Jones, 2005). The clients were randomly assigned to either the songwriting or lyric analysis group. Each group had 13 participants. Jones found out that the two music therapy techniques increased other emotional variables but did not enhance treatment motivation among the participants. Perhaps these findings were as a result of the researcher's primary focus; which was to elicit emotional change among clients suffering from substance use disorders and not necessarily motivation for treatment. However, the current study focused on enhancing TM among clients in inpatient treatment centres in Kenya.

A different study investigated the effects of group Guided Imagery and Music (GIM) on the psychological health of adults in substance abuse treatment in the USA (Murphy, 2008). The study sought to use GIM to increase motivation to treatment among clients in

an inpatient facility. Forty two clients in this residential substance use disorder treatment facility were randomly assigned to the experimental and control group. The experimental group received eight group GIM sessions while the control group only engaged in scheduled leisure activity over 21 days. The researcher found no significant differences in motivation. The leisure activities that the control group was involved in could probably have had an impact on their motivation hence the lack of a significant difference.

Music-based interventions have been used in other populations such as the dually diagnosed patients to enhance motivation. Ross et al. (2008) conducted a study among clients with a dual diagnosis of SUDs and severe comorbid mental illnesses. They found out that music therapy enhanced their treatment motivation. Unlike the current study, Ross and colleagues' study did not have a control group, which would be important for comparison. There could be extraneous variables that could have assisted in the enhancement of motivation among the participants. Thus, the current study used a control group that was as similar as possible in order to compare the outcomes.

As shown above, a number of studies found out that music-based interventions significantly enhanced motivation (Silverman, 2015; Ross et al., 2008). Other studies, however, found out that music based intervention did not enhance motivation significantly when compared with other interventions such as verbal therapy, depicting inconsistent findings (Jones, 2005; Silverman, 2011). For this reason the current study sought to investigate the effectiveness of music-based intervention in enhancing treatment motivation in order to add to the body of evidence. In addition, most of the studies reviewed were conducted in the developed nations of the West. There was,

therefore, a need for studies among the African population. This study was done among inpatient clients with substance use disorders in Kenya.

After considering literature on treatment motivation, the next sections will review studies on its components and their interaction with music-based intervention.

2.3.3 Music-based Intervention and Problem Recognition

Problem recognition is one of the constructs of treatment motivation. It refers to the degree of the person's acknowledgment or denial of behavioural complexities, and, personal problems that may result from drug use (Simpson et al., 1993). This is one of the indicators of how motivated a person is to recovery (Simpson, 1992; Simpson et al., 1993). It precedes the clients' action or inaction towards the identified problem, which in this case is the substance use problem and the resulting difficulties.

Studies suggest that patients who are unaware of their drug use problem are less likely to seek treatment. A study that sought to investigate the role substance misuse plays in making male prisoners in remand vulnerable was carried out among 236 male remandees in the United Kingdom. It was found that prisoners who were not aware that they had a drug abuse problem had not sought treatment in their lives (Brooke et al., 2000). This shows problem recognition may be a determining factor in clients seeking and gaining from the treatment of their drug use problem.

Other studies have found that problem recognition predicted treatment participation among drug abuse patients. A study was conducted by Pankow et al. (2012) among 540 adult males and females aged 20-63 years in a correction-based substance abuse treatment in Arkansas and Missouri states in the USA. The study was examining the

concurrent validity and predictive utility for the Addiction Severity Index and the Texas Christian University (TCU) short forms. They found out that problem recognition significantly predicted treatment participation and generally, treatment engagement. Clients with high problem recognition are likely to actively engage in treatment which will be of help to them in the recovery process. Thus, there was need to focus on enhancing problem recognition among clients with substance use disorders in order boost their participation in treatment and gain from it.

In addition to treatment participation, problem recognition seems to influence the therapeutic relationship among client with substance use disorders and the counsellors. A research among offenders found out that the ones with greater awareness of their substance use related difficulties developed more positive therapeutic relationships with their therapists (Broome et al., 1997). Most of these studies were done in correctional facilities. They seem to suggest that problem recognition is an important aspect of substance use disorder treatment without which the treatment process may be negatively affected. Therefore, there was need for correctional facilities and treatment centres to engage the clients in programmes that will help them recognize their drug use problem.

In helping the SUD clients recognize their problem, various interventions such as talk and music-based interventions have been used. A number of studies show that music-based interventions have been successful in helping substance use disorder clients recognize the harmful effects of drug use in their lives.

A good example is a randomized effectiveness study among clients in a detoxification centre that sought to examine the effects of lyric analysis interventions on treatment

motivation (Silverman, 2015). The study was carried out in a detoxification unit in a teaching hospital in the Midwestern United States among 104 participants. The experimental group had 51 participants while the control group had 53. Silverman (2015) found a significant difference in problem recognition between the experimental and the control groups. The respondents in the treatment group managed a greater mean score in problem recognition than the ones in the control group. It is noted that the study was done in a detoxification centre where the primary function is medical detoxification and minimal psychosocial treatment. This raises a question on whether the same would be observed in an inpatient treatment centre offering psychosocial treatment. Furthermore, Silverman's study did not have inclusion-exclusion criteria except the ability to read English and to consent, in its design. This means that all clients were included in the study as long as they were able to read English and could give consent to participate in the study. As noted by (Garg, 2016) inclusion-exclusion criteria is important as it helps the researcher sample from a population in a reliable, objective and uniform manner. It also helps in marking out characteristics that may make an individual ineligible for the study. Some of these exclusion characteristics may act as confounding factors for the outcome of the study. Therefore, in Silverman's study, there could have been some characteristics that influenced the outcome, hence the need to find out whether similar results would be established in a study that has inclusion and exclusion criteria, like the current study.

In another study, Silverman (2011) conducted a randomized effectiveness trial on music therapy and change readiness among clients in a detoxification unit. The study sampled 141 participants from a university hospital detoxification unit in the USA, where the

clients remained in the facility for about two to five days in order to get medical detoxification as part of their treatment regimen. Silverman randomly assigned the participants into three groups, namely rockumentary (A), verbal therapy groups (B) and recreational music therapy (C). The experimental conditions (A and C) received music therapy as the intervention while the control condition received verbal therapy. Apart from lyric analysis, the experimental group A received rockumentary, which entails the story of the musicians' (mainly the singers of the song being discussed in the session) struggle with substance use and their journey of recovery and sobriety. Using a post-test only design, Silverman assessed the participants' readiness to change, contemplation and action score and found out that the music therapy groups (A and C) had significantly higher scores on readiness to change scale compared to the control group. In addition, though not significant, the rockumentary group (A) had slightly higher scores on the contemplation scale compared to the recreational music therapy group (C). Contemplation scores show that the participants realize there is need to change from the status quo. This indicates that they recognize the problems that substance use behaviour is causing them. Therefore, higher scores on contemplation could be an indicator that the participants' problem recognition was enhanced. In this study, the story of the musicians' struggle with substance use and their journey to recovery could influence in enhancing the participants' problem recognition. It may be difficult to tell whether lyric analysis had helped in the greater scores in the rockumentary group, hence the need for the current study to find out whether lyric analysis could help in enhancing problem recognition.

While some studies found significant differences on the effectiveness of MBI, others did not. In a randomized clinical effectiveness trial, Silverman (2009b) sought to explore

whether lyric analysis has an effect on treatment eagerness and working alliance among clients in a detoxification unit in the United States of America. The researcher compared music therapy (specifically lyric analysis technique) and talk therapy. The study had 29 participants in the experimental group receiving one music therapy session and 37 participants in the control group receiving one verbal therapy session. Both groups were focusing on relapse prevention. Silverman found out that the experimental group that received music therapy had marginally greater scores in problem recognition among other factors compared to the control group. The two treatment interventions were not significantly different. This study depicts that music-based intervention may be useful in helping clients with substance use disorders recognize that they indeed have a problem. Perhaps the lack of significant differences between the two interventions was because the participants were at a stage where their main focus was exiting the detoxification facility. Unlike Silverman's study, the current research sought to focus on patients who were in the first eight weeks of treatment in an inpatient treatment facility. It would, therefore, be interesting to find out whether the MBI would have an effect on the clients' ability to recognize drug use as a problem in their lives. In addition, in the current study, the experimental group received four sessions of music-based intervention while the control group received the standard care only within the four weeks of the study.

With the above literature, it is evident that problem recognition is an important part of change among clients with substance use disorders. It is also evident that there are inconsistent findings on the effectiveness of music-based intervention on problem recognition where some studies have found significant differences (Silverman, 2015; Silverman, 2011) while others did not (Silverman, 2009b). It is this inconsistency in

literature that calls for more research to build on available literature. Further, the researcher noted that there were few studies on the effect of music-based intervention in enhancing problem recognition, with most of the studies done by Silverman and mainly in the developed world. Therefore, there was need for more studies from other parts of the world, especially in developing countries such as Kenya. The current study, therefore, sought to fill these gaps.

2.3.4 Music-based Intervention and Desire for Help

In the event that a drug abuse patient recognizes his/her problem, he/she may seek help. However, there are cases where the person does not seek help and instead perpetuates the problem. Various studies on how desire for help influences treatment of substance use disorders have been conducted. In a study conducted on adolescents' drug use recovery and treatment retention among 547 adolescents, Joe et al. (2014) found out that the youth who had a desire for help with their substance abuse challenge were more likely to participate and engage positively with the clinical staff and the other clients in their respective treatment centres. This may depict their willingness and effort to work on the drug use problem. As a result, the youth that develop supportive and constructive relationships with counsellors and other clients during treatment tend to have superior post-treatment results (Gifford et al., 2006; Rogers et al., 2008).

Studies in other parts of the world recorded similar results. For example, a study in Cape Town, South Africa, sought to determine the correlates of substance abuse treatment completion among disadvantaged community. There were 434 participants from a low socio-economic status aged 18 years and above. It was found out that the completers had

a higher mean rank of 229.61 on desire for help compared to the non-completers (Myers et al., 2010). This may indicate the importance of desire for help in dealing with clients with substance use disorders as it seems to influence completion of the substance use disorder treatment.

Various interventions including MBIs have been used to enhance desire for help among Substance Use disorder clients in various studies. Silverman (2011) used a single session post-test only design to find out the effects of music therapy on change readiness and craving in patients in a detoxification unit. In this study, he utilized three groups: one that had the rockumentary music therapy intervention, another that had recreational music and the last one had only verbal therapy intervention, as described earlier. He established that the differences between the three groups were significant in contemplation and action sub-scales where the groups that received the music therapy interventions had greater means than the one for talk therapy intervention. In the motivation model by Prochaska et al. (1993), the contemplation stage of change is characterized by the desire for help. Therefore, the participants in the music therapy groups may have had a higher desire for help compared to the ones in the talk therapy group. Silverman (2011) further observed that the group that received rockumentary intervention had slightly higher means than the ones on recreational music therapy intervention. Perhaps this is because the rockumentary intervention included a history of the band in relation to drug abuse and how members overcame it. This probably acted as a confounding variable in the resulting differences. It is also noted that the research was conducted in a detoxification facility in a single session. It was noteworthy to find out whether there would be similar results among patients in an inpatient facility in a different population in Africa, specifically Kenya. The

current study investigated the effectiveness of music-based intervention on enhancing desire for help in an inpatient treatment facility in Kenya.

Another study that enquired on the effectiveness of music therapy on treatment motivation among clients in a detoxification unit (Silverman, 2015) found a significant difference between the two groups in their mean scores on desire for help. In this study, using a cluster randomized single-session two-group wait-list design the researcher utilized lyric analysis intervention of two songs namely; *Hurt* and *How to save a life*. The participants in the experimental group analyzed the lyrics of the songs in relation to their addiction problem while the control/wait-list group did not receive the intervention. The study found that there were significant group differences in desire for help scores with the experimental group having higher means than the control/wait-list group. As noted, the study was done in a detoxification unit in a developed western country. There was, therefore, a need for studies on the effectiveness of music-based intervention on desire for help using more than one session and in long-term substance abuse treatment facilities. Furthermore, there was need to see if similar results would be found in a population from developing countries in Africa, specifically Kenya.

The studies done by Silverman (2011, 2015b) show that music therapy is effective in enhancing desire for help. Having in mind the paucity of studies on the effectiveness of music therapy on desire for help, Silverman indicated the need for more studies to be done with a specific focus on motivation elements. Therefore, the current study sought to fill this gap by adding more evidence in the body of knowledge.

2.3.5 Music-based Intervention and Treatment Readiness

Treatment readiness is another important component of motivation for treatment. It depicts a readiness to accept the help needed and the willingness to actively participate in the treatment process. Studies show that treatment readiness is vital for recovery from SUD. People that are low on treatment readiness most times end up dropping out of treatment and subsequently relapsing to substance abuse. The ones with high treatment readiness tend to have positive treatment outcomes (Carbonari & DiClemente, 2000; Schlosser et al., 2008).

A study that sought to find out factors that contribute to substance use treatment completion was conducted in Cape Town, South Africa (Myers et al., 2010). Myers and colleagues analyzed secondary data of 434 clients of ages 18 and above, that had accessed substance use disorder (SUD) treatment in 2006. They found out that treatment readiness increased the chances of completing treatment. This means that clients that had high levels of treatment readiness had a higher chance of completing treatment than the ones that had low levels. This shows that the client's readiness to treatment is a major contributor to the success of the treatment and more so positive treatment outcomes. There is, therefore, a need for programmes that focus on enhancing treatment readiness among SUD clients in treatment centres.

In line with this, music-based interventions have been utilized to enhance treatment readiness among SUD clients. Silverman (2011) carried out an investigation on the effect of music therapy on change readiness and craving among clients in a detoxification facility in the USA. In the study, he found out that the respondents who went through

music therapy intervention had greater scores for both contemplation and action with statistically significant between group differences with the ones who received verbal therapy. The experimental groups had significantly higher scores compared to the ones in the control group (verbal therapy). Patients with higher scores in contemplation and action are normally ready for treatment and actually pursue it. With the evidence that music therapy helped in improving the scores on contemplation and action scales; which are an indication of enhanced treatment readiness, this study sought to find out whether the music-based intervention would enhance clients' treatment readiness in SUD inpatient treatment facilities in Kenya.

These findings were supported by another randomized effective research carried out in a detoxification unit in USA that sought to find out the effects of lyric analysis on treatment motivation (Silverman, 2015b). This study established that there were significant differences between the two groups measure in treatment readiness, with participants in the experimental group (music therapy group) having higher treatment readiness means than the ones in the control group. This supports the possibility that music-based intervention indeed helps the clients increase their treatment readiness. The researcher noted that both studies were conducted in detoxification centres and the treatment was administered in a single session. Therefore, there was need to investigate whether the same results would be found in long-term treatment centres while administering the intervention in more than one session.

Some studies that used music therapy as an intervention to enhance treatment motivation found no significant differences between the experimental and the control groups. For

instance, in a three cluster-randomized clinical effectiveness trial, Silverman (2015a) sought to explore the effects of educational music therapy on treatment eagerness among other variables. The study had 58 participants who were cluster randomized to one of the treatment groups, namely, educational music therapy, education without music or recreational music therapy. In this study, Silverman used the songwriting technique among participants in the educational music therapy. Upon testing for treatment eagerness after the intervention, he found no significant between group differences. This could be because the study was carried out in a detoxification facility where the stay is normally short and thus the focus of the participants could have been on finishing the detoxification regimen. Unlike this study, the current research focused on clients in an inpatient treatment facility where the stay is longer. In addition, lyric analysis was used to enhance treatment readiness, unlike in Silverman's study.

With the inconsistent findings in the different studies, there was a need for more research to add on to the body of knowledge on the effectiveness of music-based intervention in enhancing treatment readiness among clients with substance use disorders. The researcher also notes that the studies done in the West, specifically USA, were mostly conducted in detoxification centres where the primary concern is medical detoxification of patients. This study, therefore, sought to investigate the effectiveness of MBI on treatment readiness in a long-term substance use disorder inpatient facility, using more than a single session.

Based on the above literature, there was need to conduct more research to find out the effectiveness of music-based intervention in enhancing treatment motivation and its

indicators because of the paucity of studies on the subject. Hohmann et al. (2017) conducted a systematic review of studies on music therapy and music-based interventions in the treatment of substance use disorders. They found that most studies on music-based interventions and treatment motivation were conducted by Silverman in the USA. There was need for studies in other parts of the world. Therefore, the current research aimed to fill this knowledge gap by providing evidence from Africa, specifically Kenya. Furthermore, this study provides more evidence as part of knowledge building in the music-based intervention edifice.

2.4 Summary of Literature Review and Theoretical Framework

The three indicators of treatment motivation, namely: Problem recognition (PR), desire for help (DH) and treatment readiness (TR) are important in treatment of clients with SUDs as has been demonstrated in literature (Brooke et al., 2000; Carbonari et al., 2000; Schlosser et al., 2008). This shows the need for their enhancement (that is, PR, DH and TR) and ultimately the augment treatment motivation.

MBI has been utilized to enhance problem recognition, desire for help and treatment readiness. The few studies that have used MBI have inconsistent findings. According to some studies, music-based interventions have a statistically significant effect on treatment motivation (TM) and its indicators (problem recognition, desire for help and treatment readiness) compared to other interventions such as verbal therapy (Ross et al., 2008; Silverman, 2015b; Wu et al., 2019). Other studies have found no significant effect on TM and these indicators (Jones, 2005; Murphy, 2008; Silverman, 2011). The inconsistency in literature depicted the need for more studies for additional evidence on

the effectiveness of MBI on the three constructs and ultimately on treatment motivation. Thus, the current study purposed to test the effectiveness of MBI on treatment motivation and its three constructs.

The literature reviewed also shows that most of the studies were conducted using a single-session design where the researcher offered the intervention only in one session and then proceeded to measure the difference. Perhaps this could be because the studies were done in short-term detoxification facilities. Therefore, there was need to investigate the effectiveness of MBI in long-term substance use disorder treatment facilities as noted by Silverman (2011) and Hohmann et al., (2017). The current research sought to fill this gap by administering the intervention in long-term inpatient facilities and at a longer period (four sessions) with different songs that were anchored on themes from the transtheoretical model of change.

The researcher further notes that most reviewed studies were done in the USA. Hence there was a need to carry out similar research in other parts of the world, including Africa. For this reason, the current research sought to close this knowledge gap by conducting a study in Africa, specifically in Kenya. In addition, most studies seem to have been conducted in detoxification centres.

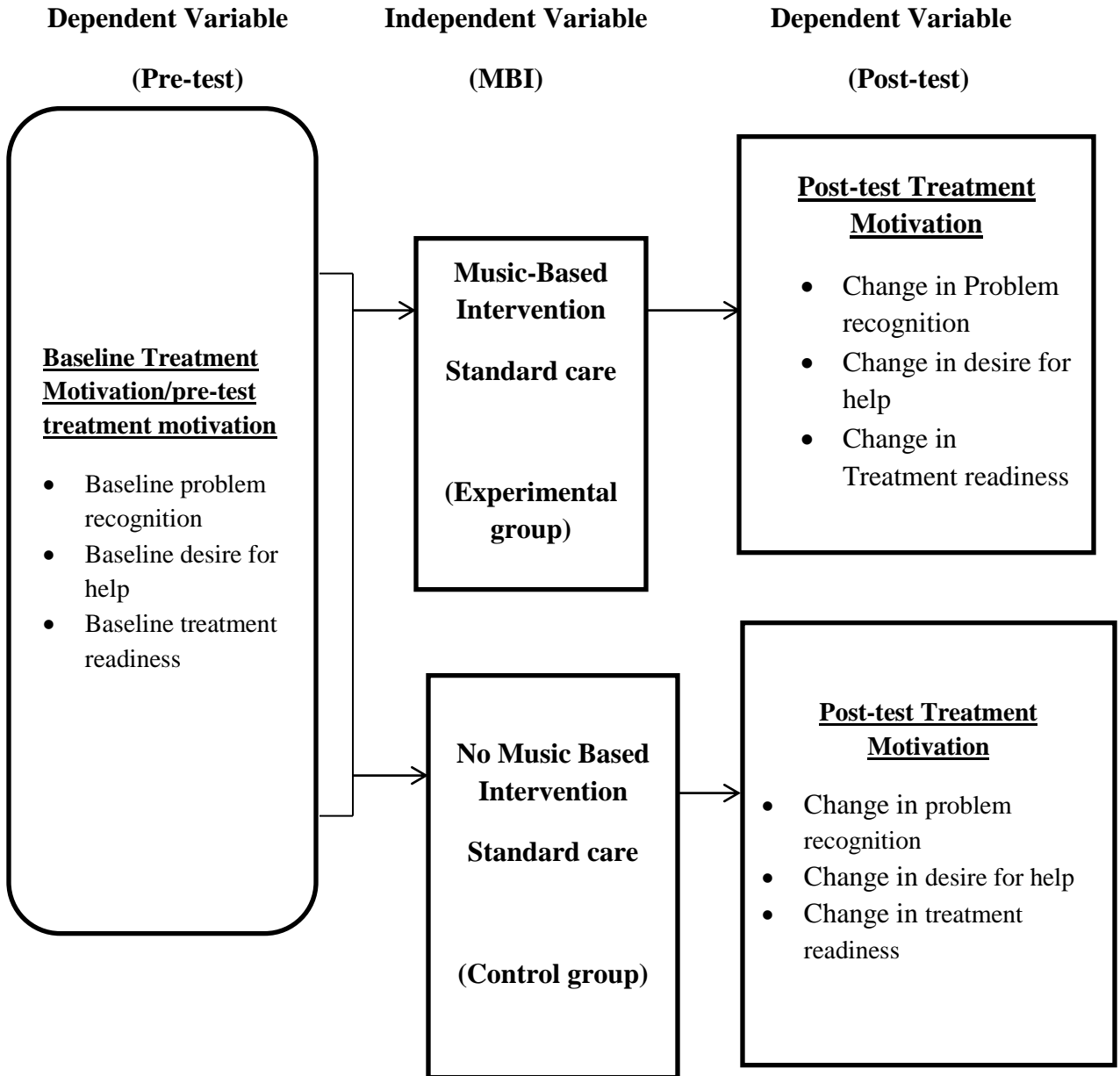
The study was guided by the transtheoretical model of change posited by Prochaska and DiClemente (1984). The stages of change (pre-contemplation, contemplation, preparation, action, maintenance and termination) as one of the major tenets of the theory indicate the process through which change occurs. For one to move through the stages successfully, they have to have motivation for change. The second tenet is the decisional

balance where the client considers the merits and demerits of change. If the merits outweigh the demerits, then there is a possibility of change and vice versa. The third tenet is self-efficacy which is viewed as situation specific confidence people have that they can cope with high risk experiences without relapsing to drug use. This tenet reflects a person's ability to change. It promotes self-belief as well as self-empowerment in the process of change. The last tenet is the process of change which refers to the implicit and explicit activities that people use to progress through the changes. The intervention was developed within this framework.

2.5 Conceptual Framework

Figure 1

Conceptual Framework



According to Figure 1 above, the participants were recruited from a treatment facility that had two branches. One of the branches was assigned as the experimental group while the other one was the control group. The experimental group received the weekly music-based intervention sessions in addition to the standard care for four weeks, while the control group only received the standard care.

It was hypothesized that after the intervention, the experimental group would have a change in the level of treatment motivation, characterized by change in the level of problem recognition, desire for help and treatment readiness. The control group too would have a change in the level of treatment motivation distinguished by change in the level of problem recognition, desire for help and treatment readiness considering that they received standard care.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter illustrates the methodology that was used in the study on the effectiveness of music-based intervention on treatment motivation among substance use disorder clients in selected treatment centres in Kenya. The section discusses the methodology under these subtopics: Research design, study variables, site of the study, target population, sampling techniques , sample size, validity , reliability, pilot study, data collection procedures, data analysis, data presentation, data management and ethical considerations.

3.2 Research Design

This study used a quasi-experimental design, specifically the non-equivalent control group pre-test post-test type. The quasi-experimental design is used where one cannot randomly assign participants to experimental and control groups. It enables the researcher to determine the effectiveness of the treatment intervention when compared with the standard of care treatment (control/delayed intervention) group. The non-equivalent group pre- and post-test design involves the use of two intact groups that are similar. The two groups are used as the treatment and control groups respectively.

This design was ideal for this study for a number of reasons. First, the participants in this study were in residential treatment centres. Conducting a randomized controlled study would have required moving them to different locations to avoid contamination in order to obtain objective results. Furthermore, it would be difficult to ensure that the clients had similar characteristics across different treatment centres. Therefore, this was not feasible

in the current study. Secondly, it helped the researcher to determine the effectiveness of MBI as a clinical intervention on TM of clients by comparing the TM of the treatment group to that of the control group. The two groups were obtained from the same treatment institution but in different facilities. One facility was used as the experimental group and the other the control group because they use the same model of standard of care.

3.3 Study Variables

The variables in this research were music-based intervention and treatment motivation. Music-based intervention which was the independent variable was conceptualized as the use of music and the analysis of the lyrics (words in the songs) to create awareness, enhance insight and encourage change from substance use. In addition, the standard care, which was an independent variable, was conceptualized as any conventional treatment such as counselling, pharmacotherapy, offered at the treatment facility. Treatment motivation which was the dependent variable was conceptualized as a psychological construct characterized by a manifestation of problem recognition, expression of desire for help and treatment readiness by clients. Treatment motivation was measured on an interval scale which was using a Likert scale. In addition, since randomization was not feasible, the research may have some extraneous variables such as age, gender, level of education, number of admissions and nature of admission of the participants. These variables were statistically controlled during the analysis of data. The participants' co-morbidities were also part of the extraneous variables. To ascertain that both groups were similar as possible, the researcher ensured that matching was done such that both groups had clients with co-morbidities.

3.4 Site of the Study

The study was carried out in a selected private treatment centre accredited by the National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA) which is the substance use disorder treatment accrediting authority in Kenya. This site was chosen because the centre runs two branches (A and B) of its facility in Kajiado and Kiambu counties. It admits the same type of clients and uses identical treatment models at the two branches. Further, the staff had similar qualifications since the management uses the same recruitment protocol. The use of this treatment centre was important to ensure that the participants in both branches experienced similar conditions during treatment at the start of the study. This was important as one of the branches would form the treatment group and the other the control group through random determination.

3.5 Target Population

The target population of this research was a total of 69 male and female clients admitted with substance use disorder in the two branches of the selected treatment centres in Kenya. The study included all clients that met the inclusion–exclusion criteria regardless of their co-morbidities as the eligibility criteria should try to include a population that is similar to the clinical practice situation as recommended by Thorpe et al. (2003).

3.5.1 Inclusion Criteria

The following inclusion criteria were applied for both the experimental and the control group: The participants' age was 18 years and above. They had to be conversant with English, had to have been in the treatment centre for not more than eight weeks and had

to be present in the next four weeks. In addition, they must not have had music-based intervention sessions before.

3.5.2 Exclusion Criteria

Both the experimental and control groups were subjected to the following exclusion criteria: Younger than 18 years, not conversant with English, had been in the treatment centre for more than eight weeks, was not to be present in the next four weeks and had had music-based intervention sessions before. The lower limit of the age range of 18 was chosen as anyone younger is considered to be underage and thus not able to give informed consent.

3.6 Sampling Techniques and Sample Size

A multi-stage sampling approach was used. In the first stage, the researcher purposively selected one substance use disorder inpatient treatment institution with at least two facilities. In the second stage, one branch was randomly sampled to be the experimental group. The other was the control/delayed treatment group using simple random sampling. In the third stage, purposive sampling was used to obtain participants. Among the clients in the treatment centre, 20 participants that met the inclusion criteria were assigned to each group in their respective treatment centres, making a total of 40. According to Roscoe (1975) as cited by Sekaran (2003), a sample size of 30 to 500 participants is sufficient for research studies. The current research targeted a sample 30. However, in the treatment centre, 40 clients met the inclusion criteria; hence they were included in the study. Adding participants from other treatment centres would not have been feasible as

they would be receiving a different form of standard of care. For this reason, measuring the effectiveness of the music-based intervention would not be possible as the two different forms of standard care would contaminate the study.

3.7 Research Instruments

A two-part questionnaire was used in this study. The first part sought to obtain their demographic information. The second was the treatment motivation scale adapted from the TCU Self-Rating Form (TCU/SFR) (Simpson, 1992) which comprised three subscales, namely problem recognition, desire for help and treatment readiness scales.

Having in mind that there are a number of versions of the TCU TM scale, the TCU treatment motivation scale from the TCU self-rating form (Simpson, 1992) was used for this study. This instrument was chosen because of its ease to read and understand nature and thus would be suitable even for people with low literacy level as indicted by Knight et al. (1994).

The TCU/SRF TM motivation scale is a 24-item self-administered questionnaire. It has three scales: Problem recognition which has nine items (1, 4, 5, 7, 9, 13, 17, 20, 23), desire for help which has seven items (2, 8, 11, 15, 16, 19, 24) and treatment readiness which has seven items (3, 6, 10, 12, 14, 18, 21, 22). It is worth noting that the scores for items 3, 6, 12 16 are reversed. The items in each subscale were shuffled by the author to reduce response bias. All items are scored on a five point Likert type scale. The categories are: 1=strongly disagree to 5=strongly agree. Scores for each scale were calculated as follows: Find and reverse the scoring for reflected items by subtracting the response from six then sum the response values of all items for each scale. Find the

average of each scale then multiply by 10 for it to range from 10-50. The three subscales were summed together to give the total treatment motivation score. A higher score on the TCU motivation scale showed higher treatment motivation.

3.8 Validity and Reliability

A study on the psychometric properties of the TCU motivation scale found that it is a valid tool that can be used to measure treatment motivation among substance use disorder clients (De Weert-Van Oen et al., 2002). According to Joe et al. (1999), problem recognition, desire for help and treatment readiness scales successfully predicted treatment engagement and outcome. They also found that their construct validity — whether the instrument measured what it intends to quantify — was adequate. In addition, various studies conducted on different populations such as probation clients in the USA (Knight et al., 1994) have found the scales to have significant correlations with a number of background and pre-treatment tools in the predicted direction (Simpson & Joe, 1993; Simpson et al., 1993). This, therefore, shows that their concurrent validity was acceptable. Another study carried out in Iran among persons who use drugs found that it has good face validity with a reliability co-efficient of 0.88 and thus a reliable instrument (Shahrabadi et al., 2021). This, therefore, shows that it is a tool that can be used cross-culturally.

The problem recognition (PR) scale had a reliability coefficient .87 for the Drug Abuse Treatment for AIDS-Risks Reduction 2 (DATAR 2) sample and .90 for the Substance Abuse Treatment Facility (SATF) sample. The desire for help (DH) scale had a reliability co-efficient of .75 for the DATAR 2 sample and .82 for the SATF sample .The treatment

readiness (TR) scale had co-efficient alphas of .73 for the DATAR 2 sample and .72 for the SATF sample. A good-to-fit co-efficient for the DATAR 2 sample (.97) and for the SATF (.95) was acceptable (Knight et al., 1994).

The test-retest reliability of the TCU treatment motivation scale and the three subscales, namely problem recognition, desire for help and treatment readiness, was conducted using the pre- and post-test pilot data of the five participants in the control group (they did not receive the intervention). The findings indicated that problem recognition had a reliability co-efficient of .89, desire for help had .93 and treatment readiness had .83. As for the overall TCU treatment motivation scale, a reliability co-efficient of .98 was found. The test-retest reliability co-efficients of the three subscales (PR, DH and TR) were considered acceptable ($>.70$) while the overall treatment motivation scale was considered excellent as suggested by Wheelan (2014).

Further, the internal consistency of the TCU treatment motivation (TM) scale (Knight et al., 1994) was computed from the sample population of 40 participants using the Cronbach's alpha on SPSS. The results showed that the overall TM scale had a reliability co-efficient of .87. Similarly, the three subscales were found to be reliable at .88 for PR, .82 for DH and .75 for TR.

3.9 Pilot Study

To assess the study process and tools, a pilot study was conducted using 10 participants obtained from a different treatment centre with branches in Kajiado and Nairobi Counties, and with similar characteristics as the one in the main study. They were not included in the final sample to avoid getting flawed results due to contamination. Simple

random procedures were used to assign the branches to the treatment group and the control/delayed intervention group. Each group had five participants. The treatment group was exposed to the pre-determined music-based intervention. The control/delayed intervention group only received the standard of care treatment. The two groups were then compared on the variable motivation on pre and post measures. The pilot study helped in improving the tool by clarifying or eliminating vague items, thus enhancing its reliability. For instance, the item on the occupation only included four options namely: Casual laborer, salaried employment, self-employment and student. However, during the pilot study, there were participants who were working and at the same time at school. Therefore, the student option was dichotomized to either student-employed or student-unemployed.

3.10 Data Collection Procedures

3.10.1 Recruitment

Data was collected by the researcher who has an MA in Counselling Psychology and a certificate in music (practical and theory). Data collection commenced after the researcher got ethical approval of participants' protection from Kenyatta University's Ethics Review Board and secured a research permit from National Commission for Science Technology and Innovation (NACOSTI). The researcher then proceeded to the two branches of the selected substance use disorder inpatient treatment centre from which the participants were recruited. The study only included volunteers who met the inclusion and exclusion criteria. The researcher personally administered the TCU treatment motivation questionnaire for pre-testing to all the sampled participants before the commencement of the programme. Thereafter, the experimental group in branch A

received the music-based intervention for four weeks. The control group in branch B only received the standard of care offered at the centre. To eliminate response bias, post intervention, the TCU treatment motivation questionnaire was administered to all participants by research assistants who were not aware of which participants received the intervention and which ones did not. The pre- and post-test outcomes were then statistically analyzed to establish the differences between the two groups (A and B).

3.11 The Treatment/Intervention

The treatment/intervention in this study was MBI which was developed by the researcher based on the transtheoretical model of behaviour change to enhance treatment motivation among the clients. It consisted of four sessions of 60 minutes each comprising presentation of a song earlier chosen by the researcher therapist based on one of the four themes selected from the Transtheoretical model of behaviour change as described in the theoretical framework. The themes include: consciousness raising, self-evaluation, discrepancies in life, decisional balance and self-efficacy. The songs used were: *The more I drink* by Blake Shelton, *Mac Muga* by Ali Kiba, *Desparado* by Eagles and *Roar* by Katy Perry. The Iso principle guided the researcher in choosing these songs. The Iso principle is conceptualized as the principle of matching music with the behaviour of the client (Michel et al., 2005). The music chosen is more likely influence the clients if it resonates with them, their behaviour and experiences.

For instance, the song used in the first session, *The more I drink*, matches the behaviour of most clients suffering from substance use disorders. Its themes include addiction, unruly behaviour when drunk and sobriety. The song was, therefore, appropriate for

raising consciousness on life in addiction. Furthermore, its musical elements like the faster rhythm, the simple melody and humorous mood helped in inviting the clients to consider their life in addiction in a non-threatening way since they had a choice to talk about their lives using the main character in the song. In the second session, the song *Mac Muga* featured. Its themes include evaluation of behaviour, pride and arrogance, wastefulness, regret, hopelessness and helplessness. These messages were helpful in inviting the clients to self-evaluate and assess the discrepancies in their lives. Further, the song's musical elements such as somewhat faster rhythms, imagery in the lyrics and melody informed its selection. All these elements helped in painting a picture of the discrepancies in the life of the main character, which was similar to the life of most clients with substance use disorders.

Desparado was selected for the third session on decisional balance. This song's themes such as desperation, choice, loneliness, and authentic discussion of escapism through pleasure (in this case, through substance use) aided in the discussion on decisional balance. The song's musical elements such as its slow rhythm, melody as well as its reflective mood invited the participants to reflect on the pros and cons of their decisions, both in the past and in the present. *Roar* featured in the last session and it is characterized by themes like courage, determination and self-belief, which rhymed with the focus of the session, self-efficacy. Self-efficacy promotes self-belief as well as self-empowerment which is what the lyrics of the song encourage. Apart from the theme of the song, other musical elements such as melody, somewhat upbeat rhythm and cheerful mood were considered in its selection. This was important as it helped the client integrate their

internal and external experiences (Altshuler, 1948), thus influencing towards self-belief and a more positive view of their treatment process.

The intervention was delivered for four Tuesdays at midday at the group therapy session room within the substance use disorder treatment centre, which allowed for privacy. The experimental group received the intervention and the usual standard care from their facility. The control group only received standard care only from the facility.

Before the intervention was administered, the researcher-therapist explained the purpose of the sessions. The participants together with the researcher set the rules that would guide the sessions. This helped in creating rapport as well as igniting participation in the sessions. One of the rules, for instance, was that there was no wrong answer or interpretation of the lyrics. This was to ensure the participants would air their views without fear of differing with others. This laid the ground on how the sessions would go throughout the four weeks.

Each MBI session comprised five steps:

- a) **Step 1:** Opening phase/check-in (15 minutes). It involved participants answering questions about how they were doing at that moment. They were also allowed to pick instruments (djembe drum and tambourine) that they wished to play (if they wanted to) and the lyric sheets were distributed.
- b) **Step 2:** Practice phase (five minutes). It involved the researcher 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.

- c) **Step 3:** Live presentation of a pre-selected song by the researcher-therapist (five minutes) playing a six steel-string acoustic guitar accompanied by some of the participants playing the djembe drum and tambourine (played by participants). The other participants were informed that they were free to sing along.
- d) **Step 4:** Analysis and discussion of the lyrics by the participants (30 minutes). This entailed analysis of the lyrics based on the lyric analysis and discussion guide (see appendix VI) to ensure that the participants remained focused on the themes of the sessions.
- e) **Step 5:** Closing phase (five minutes). It involved a summary of what happened and a remark on the next session from the researcher therapist.

Bearing in mind that music can evoke negative experiences such as cravings or difficult memories (Short et al., 2015), the researcher-therapist checked with the clients at the end of every session to ensure that in case anyone was negatively affected he/she was offered individual counselling. However, no negative experience was reported during the sessions. The detailed treatment protocol is shown in appendices V, VI and VII.

To ensure fidelity to the intervention, a treatment protocol developed by the researcher was used. It highlighted the themes based on the tenets of the transtheoretical model of change, music and activities of each session. In addition, the researcher-therapist developed questions to guide the lyric analysis process. For instance, in the first session

whose theme was consciousness raising, the song *The more I drink* was used. In the lyric analysis phase, the researcher-therapist invited the participants to identify the behaviours that they were not proud of in their addiction life using the following question: When Blake Shelton says in the chorus “the more I drink, the more I drink then am the world’s greatest lover..... and it gets worse!” Do you relate to this? What are some of the embarrassing things that you did while high/intoxicated? The question would raise awareness of their addiction-related behaviours. As such, the questions were from the lyrics of each song used in the intervention and focused on the theme of the session.

3.12 Data Analysis and Presentation

To analyze demographic data and treatment motivation among respondents, descriptive statistics, frequency, percentages, means and standard deviations were used. The analysis is presented by use of linear and histograms graphs and tables. In addition, a parametric test, specifically Analysis of Covariance (ANCOVA) was used to measure the effect of music-based intervention on treatment motivation. It was useful in comparing the mean values before and after intervention for the experimental and control groups while controlling for covariates as there were other variables that could have had some confounding effects on the results of the study. Some of these variables include, age, gender, level of education, number of admissions, nature of admissions and the pretest (due to variations in the levels of treatment motivation between the experimental and the control groups). The confounding effects of covariates were statistically controlled as ANCOVA had that provision of control unlike Analysis of Variance. It was also useful in measuring variance within the treatment groups (Gravetter & Wallnau, 2009). Statistical

analysis was conducted between the treatment motivation measures at pre- and post-test. ANCOVA being parametric test, there was a need to test normality of distribution of treatment motivation scores before it could be used. Shapiro-Wilk was used for normality test because the sample size was less than 50 and it has higher statistical power to detect non-normality than other tests of normality. Another assumption that was to be fulfilled for the researcher to use ANCOVA was linear relationship between covariates and dependent variable. The researcher used Pearson moment of correlation to test this linear relationship. Like ANOVA, ANCOVA requires equality of variance across the two groups, the Levene's test of equality of error variance was performed which is an in-built test within ANCOVA. The Bonferroni post hoc test which is also an in-built test in ANCOVA was used to establish magnitude of mean difference and where the difference was to exist (in experiment or control group) for purpose of pairwise comparisons of post-test score means of experiment and control group.

3.13 Data Management and Ethical Considerations

The researcher sought approval to carry out the proposed research from the Kenyatta University Graduate School, Ethics Review Board for ethical considerations that ensures safety of the participants, and the National Commission for Science, Technology and Innovation (NACOSTI) tasked with monitoring and evaluating activities relating to scientific research, before the study commenced. The researcher informed the participants what the study involved and how the data was to be used. The participants voluntarily signed (using a signature that would not identify them) the consent form. Only those who freely consented by appending a signature to the consent form were included in the

research. Privacy and confidentiality were safeguarded. The participants were asked not to include their names on the pre- and post-treatment questionnaires to guarantee concealment of their identity. A statement of confidentiality was incorporated on the questionnaires. It was also emphasized during the administration of treatment and questionnaires. Having in mind the delicate nature of the participants — SUD clients, further counselling and psychotherapy sessions were done by a professional counsellor in case any undesirable emotional or psychological effects arose.

During the study, the control/delayed intervention did not receive the music-based intervention. Instead they received the standard of care treatment. However, since the study revealed benefits of the intervention, the researcher administered the same intervention as Kumar (2005) indicates that it would have been unethical to deprive them of it.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study on effectiveness of music-based intervention on treatment motivation among clients in selected substance use disorder treatment centres in Kenya. The chapter is divided into five sections. It begins with the presentation and discussion of demographic characteristics of the sample, followed by the findings on the various objectives in this study. The objectives were: To determine whether there are significant differences in TM between clients exposed to MBI and the control group; to find out whether there are significant differences in the PR aspect of treatment motivation between clients exposed to MBI and the control group; to determine whether there are significant differences in the DH aspect of treatment motivation between clients exposed to MBI and the control group; to find out whether there are significant differences in the TR aspect of treatment motivation between clients exposed to MBI and the control group in selected treatment centres in Kenya.

4.2 Demographic Characteristics of the Sample

A sample of 40 participants that met the inclusion and exclusion criteria from substance use treatment centres in Kenya was selected. Data on the various demographic variables of the sample was analyzed. The variables included age, gender, level of education, occupation, nature (voluntary or involuntary) and number of admissions. The findings of these analyses are described below.

4.2.1 Age of the Participants

The participants of this study were drawn from substance use disorder patients who were 18 years and above. The distribution of the participants across the various ages is as shown in Table 4.1 below.

Table 4. 1

Age of the Participants

| Age | Frequency | Percentage |
|--------------|------------------|-------------------|
| 18-22 | 2 | 5.0 |
| 23-27 | 5 | 12.5 |
| 28-32 | 7 | 17.5 |
| 33-37 | 9 | 22.5 |
| 38-42 | 7 | 17.5 |
| 43-47 | 4 | 10.0 |
| 48-52 | 5 | 12.5 |
| 53-57 | 1 | 2.5 |
| Total | 40 | 100.0 |

Table 4.1 shows that most of the participants were aged between 23 and 42 years. These findings are consistent with NACADA's (2017) report that showed majority of the people using drugs were 25 years old and above. Therefore, the people within this range were more likely to be seeking treatment for SUDs. This could be because young people in Kenya transition to university or get increased freedom from their parents or guardians at 18 and 19 and they may then start experimenting and using drugs. In fact, a couple of studies have shown that the young people start using drugs at a young age, sometimes before the age of 18 (Chege, 2015; NACADA & KIPPRA, 2019). By the time they get

into their early to mid-20s, it is possible that their use of drugs has progressed into an addiction and hence the need for treatment. A study conducted by Dennis et al. (2002) found that most people who start to use drugs before the age of 18 are likely to develop a substance use disorder by 20 years and above. A more recent study shows that substance use may peak among young people between the ages of 18 and 25 years (18 years may mean one started using drugs earlier) (UNODC, 2018). If not treated early, the young people are likely to continue with the use of drugs since they get into employment where they earn money which supports their addiction. For that reason, it is possible that by the time they are in their 30s and 40s their use is unsustainable considering the increase in responsibilities that come with age, such as work and family. Merline et al. (2004) found that people above the ages of 35 may lower their use of drugs as a result of being a professional, which may mean that they are working, and being married. This may influence them to join treatment to deal with the substance use disorder.

4.2.2 Gender of the Participants

The study involved both male and female participants. Their distribution was as shown in Table 4.2.

Table 4. 2

Gender Distribution of the Participants

| Gender | Frequency | Percentage |
|---------------|------------------|-------------------|
| Male | 37 | 92.5 |
| Female | 3 | 7.5 |
| Total | 40 | 100.0 |

As shown in Table 4.2 above, majority of the participants were male. This is consistent with the finding of other studies. For instance, globally, UNODC (2018) found that men are more likely than women to use different drugs. Similarly, according to studies done in Kenya, males are more likely to suffer from substance use disorders than females (John et al., 2018; Kamenderi et al., 2019). This is perhaps why it is more likely to find male clients in the treatment centres than female.

4.2.3 Level of Education of Participants

The participants were asked to indicate their highest level of education categorized as primary, secondary and university. Table 4.3 below presents the findings.

Table 4.3

Level of Education of Participants

| Level of Education | Frequency | Percentage |
|---------------------------|------------------|-------------------|
| Primary | 0 | 0.0 |
| Secondary | 10 | 25.0 |
| University | 30 | 75.0 |
| Total | 40 | 100.0 |

From Table 4.3, majority of participants (75%) had attained university education. Only a quarter of the sample (25%) had secondary education as their highest qualification in both groups. The results of this study are in contrast with a study conducted by Opsal et al. (2019) in three addiction centres in Southern Norway where only a few of the clients

in their research had more than a high school education. This shows that substance use disorders not only affects people with low level of education but also those that are highly educated. It is also interesting to note that for the participants of this study, drug use does not seem to interfere with academic progress. In addition, this indicates that people with higher levels of education are more aware of treatment services and may have a higher likelihood of seeking these services.

4.2.4 Occupation of Participants

The participants had different occupations, which were categorized as salaried employment, self-employed, student employed, student unemployed or casual labourer. The distribution of the different occupations was as depicted in Table 4.4.

Table 4. 4

Occupation of Participants

| Occupation | Frequency | Percentage |
|---------------------|------------------|-------------------|
| Salaried-Employment | 25 | 62.5 |
| Self-Employed | 5 | 12.5 |
| Student-Employed | 1 | 2.5 |
| Student-Unemployed | 9 | 22.5 |
| Casual Labourer | 0 | 0.0 |
| Total | 40 | 100.0 |

According to Table 4.4, majority of participants were in salaried employment at 62% followed by unemployed students at 22.5%. None of the participant was a casual labourer. This study's results are similar to those of a NACADA (2017) survey, which revealed that majority of the current users of alcohol and some narcotics were in employment. This could be because the pay they get makes it easier for them to access their drug of choice, hence constant use could lead them to addiction and seek treatment as a result. In contrast, a study conducted in a federal hospital in Nigeria on the socio-demographic variables of SUD clients found out that majority of them were unemployed. Similarly, Opsal et al. (2019) found out that only few of the clients in the treatment centre were in salaried employment. Majority, 86.1% received public welfare benefits. The differences in finding could be because the current study was conducted in a private residential treatment centre where people from a higher socio-economic status may seek help as opposed to public facilities where the ones from a low socio-economic background are more likely to seek treatment.

4.2.5 Nature (Voluntary or Involuntary) of Admission of the Participants

The participants were admitted either voluntarily or involuntarily. Data on the nature of their admission was analyzed and the results are as shown in Table 4.5 below.

Table 4. 5*Nature of Admission of the Participants*

| Nature of admission | Frequency | Percentage |
|----------------------------|------------------|-------------------|
| Voluntary | 30 | 75.0 |
| Involuntary | 10 | 25.0 |
| Total | 40 | 100.0 |

As shown on Table 4.5, a quarter of the participants were admitted to the treatment centre involuntarily. This shows that a big number of clients are not ready to change their substance use behaviour and sometimes are coerced into treatment for the sake of their health and other social reasons (Klag et al., 2005; Opsal et al., 2019). However, three-quarters of the participants in the study were voluntarily admitted in the treatment centres. This could be because of their higher education level, which makes them aware of treatment services and it is easier for them to understand the need for treatment. It could also be because that a majority of them are working and, therefore, seek treatment in order not to lose their jobs or businesses. These findings are similar to other studies that found out that a majority of the clients were voluntarily admitted into treatment centres (Opsal et al., 2011).

4.2.6 Number of Admissions of the Participants

The respondents were asked how many times they had been admitted for substance use treatment facilities. Table 4.6 below summarizes the results.

Table 4. 6*Number of Admissions of the Participants*

| Number of Admissions | Frequency | Percentage |
|-----------------------------|------------------|-------------------|
| Once | 32 | 80.0 |
| Twice | 6 | 15.0 |
| Thrice and above | 5 | 5.0 |
| Total | 40 | 100 |

As presented in Table 4.6, few participants (5%) had been admitted more than thrice. Majority of them were in for their first admission (80%). This may be because of a growing realization of the need and accessibility of treatment among people with substance use disorders. The current study's results show higher rates of first admissions compared to UNODC (2015) that indicated that about half of clients in substance use disorder treatment centres were first time entrants.

4.2.7 Age and Nature of Admission (Voluntary and Involuntary)

A cross tabulation of data on the age of the participants and the nature of admission was done. The results were as given in Table 4.7.

Table 4. 7*Age and Nature of Admission of Participants*

| Age | Voluntary | Percentage | Involuntary | Percentage |
|--------------|------------------|-------------------|--------------------|-------------------|
| 18-22 | 0 | 0.0 | 2 | 100.0 |
| 23-27 | 2 | 40.0 | 3 | 60.0 |
| 28-32 | 7 | 100.0 | 0 | 0.0 |
| 33-37 | 7 | 77.8 | 2 | 22.2 |
| 38-42 | 6 | 85.7 | 1 | 14.3 |
| 43-47 | 3 | 75.0 | 1 | 25.0 |
| 48-52 | 4 | 80.0 | 1 | 20.0 |
| 53-57 | 1 | 100.0 | 0 | 0.0 |
| Total | 30 | 75.0 | 10 | 25.0 |

Table 4.7 above shows that younger clients between the ages of 18 and 27 were involuntarily admitted to the treatment centre. As reflected in studies done by NACADA (2012; 2017) and Chege (2015), many young people are engaging in substance abuse. A good number of them do not see it as a problem and, therefore, are often forced into treatment. Furthermore, during this time, the youth are in the young adult developmental phase where they often demand and experience increased independence in the choices they make. Therefore, they may refuse to get into treatment if suggested by other people. For this reason, it is likely that they are coerced into treatment the moment they refuse to do so voluntarily. The population in this study is somewhat younger compared to the ones found in Norway where the mean age of involuntary admitted clients was 29 (Opsal

et al., 2013). The findings of the current study are similar to those of Opsal et al. (2019) who found out that 24 was the median age of the majority of involuntarily admitted clients.

4.2.8 Gender and Nature of Admission

Data on the sample was further analyzed to find out the interaction between the gender and the nature (voluntary and involuntary) of admissions among the participants. The findings are as presented in table 4.8 below.

Table 4. 8

Gender and nature of admission

| Gender | Voluntary | Percentage | Involuntary | Percentage |
|---------------|------------------|-------------------|--------------------|-------------------|
| Male | 29 | 78.4 | 8 | 21.6 |
| Female | 1 | 33.3 | 2 | 66.7 |
| Total | 30 | 75 | 10 | 25 |

From Table 4.8 above, majority of males were admitted voluntarily, while most females were admitted involuntarily. Similar findings were reported by Opsal (2013) whose study on involuntarily admitted patients with substance use disorder found out that the females who were admitted involuntarily to SUD treatment centres were twice as many as those who were admitted voluntarily. This could be because females are viewed to be more vulnerable to negative situations, such as violence while in addiction (Lundeberg, Mjaland, Nilsen, Søvig & Ravneberg, 2010). Therefore, they may be forced into treatment compared to men. Furthermore, women face unique challenges in accessing and staying in treatment. About 60% of them are tasked with the caregiving role both of

their parents and children (Substance Abuse and Mental Health Services Administration (SAMHSA), 2013). Balancing the need to care as well as that of their substance use disorder treatment becomes a challenge. For this reason, they may end up being coerced into treatment.

4.3 Music-Based Intervention and Treatment Motivation

The first objective sought to determine whether there were significant differences in TM between clients exposed to MBI (treatment group) and those not exposed to MBI (control group).

To analyze the data on the effect of the music-based intervention on treatment motivation among clients in a selected treatment centre in Kenya, a parametric test, specifically ANCOVA, was used. It was chosen because it can be used to compare data from two independent groups while controlling for some variables that may influence the dependent variable which is the level of treatment motivation in this research.

In order to use ANCOVA, the data had to meet various assumptions, which include normality of distribution, homogeneity of variance across the groups and a linear relationship between the covariate and the dependent variable. The pretest data was used to examine the assumptions.

4.3.1 Test of ANCOVA Assumptions

The following section will begin by testing the assumptions, and then the researcher will present the descriptives on music-based intervention and treatment motivation on both the experimental and the treatment group. Lastly, the null hypothesis, there are no

significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya, will be tested using ANCOVA.

The Shapiro-Wilk test was used to test the first assumption, namely the normality of distribution. Normality of distribution is important as it ensures that the sampling distribution of the mean is normal across the experimental and the control group. This is demonstrated using the scatter plot presented in Figure 2.

Figure 2

Treatment Motivation Pretest Normality Scatter Plot



As shown in Figure 2, the Shapiro-Wilk test showed a normal distribution of the Treatment motivation levels at pre-test at $W(40) = 0.96$, $p = 0.01$ since the p value was

greater than .05. Most cases fall within -2 and +2, which suggest that the distribution of the sample mean is normal for the treatment motivation scores across the experimental and the control groups. Therefore, the assumption of normal distribution was met.

The second assumption that was tested was the homogeneity of variance. For one to use ANCOVA, it is assumed that the variance is equally distributed across the two independent groups, namely the experimental and the control groups. To examine whether there was equality of variance across the two groups, the Levene's test of equality of error variance was performed and the results are as presented in Table 4.9.

Table 4.9

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

According to Table 4.9, the assumption of equal variance was met since the difference between the experimental and control groups was not significant, $F(1, 38) = 3.88$, $p = .06$ reported at the value $p < .05$.

Thirdly, the researcher sought to find out whether the covariate is linearly related to the dependent variable. This is important because if the relationship between the two is not linear, there may be bias when adjustments are made in ANCOVA (Vogt, 1999). To test the assumption of a linear relationship between covariate (TM pre-test) and the dependent variable (TM posttest), Pearson correlations was performed as presented on Table 4.10.

Table 4. 10

Pearson Correlation Linear Relationship Test

| | | Treatment motivation pre-test | Treatment motivation post-test |
|----------------------|---------------------|----------------------------------|-----------------------------------|
| Treatment motivation | Pearson correlation | 1 | .778 ^{**} |
| Pre-test | Sig. (2-tailed) | | .000 |
| | N | 40 | 40 |
| Treatment motivation | Pearson correlation | .778 ^{**} | 1 |
| Total post-test | Sig. (2-tailed) | .000 | |
| | N | 40 | 40 |

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

The Pearson product-moment correlation test indicates that there is a correlation between treatment motivation pretest and posttest levels. As indicated in Table 4.10, the significance level is $r = .78$, $n = 40$, $p = .00$ which is less than $.05$. This shows that the covariate TM pre-test has a linear relationship with the dependent variable TM post-test. Therefore, the assumption that the covariate has a linear relationship to the dependent variable was met in this study.

Since the data satisfied the various assumptions for ANCOVA, the researcher proceeded to analyze pre- and post-test data on the music-based intervention and treatment motivation between the experimental and control group.

4.3.2 MBI and Treatment Motivation One-Way ANCOVA analysis

In this section, an analysis of data on the levels of Treatment Motivation (TM) on both the experimental and the control group will be presented. The researcher will first present descriptive statistics on pre-test and post-test scores of TM for both groups (experimental and control group). This will then be followed by testing the null hypothesis that there are no significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya.

4.3.2.1 Descriptive Pre-test and Post-test Treatment Motivation Means Comparison between the Experimental and the Control Group

At the onset of the study a pre-test on the level of treatment motivation (TM) for both the experimental and the control group was conducted. The experimental group received the Music-Based Intervention (MBI) and the standard of care, while the pre-test only underwent the standard of care. After the four-week intervention, a post-test on the level of TM was carried out on both groups. This data was analyzed using one way ANCOVA and the findings on the descriptives are as presented on Table 4.11.

Table 4. 11

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

| | N= | TM Pre- test means | Standard deviation | TM post- test means | Standard 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 | | |

a. Covariates appearing in the model are evaluated at the following values: Treatment motivation pre-test = 81.30, age of the respondent = 4.28, level of education = 2.75, nature of admission = 1.25, number of admissions = 1.30.

As indicated in Table 4.11, the TM mean score of the experimental group was M= 80.15, SD= 17.38 while the control group had a mean score of M= 82.45, SD= 16.41. Although the difference was somewhat small, the experimental group had a standard deviation of 17.38 which shows a greater variability of scores from the mean, compared to the control group whose standard deviation was 16.41. After the music based intervention was administered to the experimental group, while the control group only received the

standard of care, at post-test, the experimental group had a higher mean score ($M= 99.20$, $SD= 13.95$) compared to the control group ($M= 86.45$, $SD= 15.63$). Additionally, the results show that the experimental group had a standard deviation of 13.95, which indicates that the scores of participants in the experimental group were clustered around the mean, compared to the control group (15.63) at post-test. However, after controlling for a number of covariates namely; TM pre-test scores, age, level of education, nature of admission and number of admissions, the experimental group had a TM mean score of $M= 100.16$, $SE= 1.60$, compared to the control group's $M= 85.50$, $SE= 1.60$. This shows that the experimental group that received the MBI and standard of care had higher scores than the control group that only received the standard of care after removing the effects of the covariates. Therefore, the combination of the MBI and standard of care seem to have a greater effect in enhancing the TM means compared to the standard of care alone.

After establishing the mean differences between the experimental and the control groups after controlling for the various covariates at post-test, the researcher sought to test the null hypothesis. To test the null hypothesis that there are no significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya, one-way ANCOVA was computed while controlling for TM pre-test mean scores, age of the participants, level of education, nature of admission and number of admissions. The results are as presented on Table 4.12.

Table 4. 12

One-way ANCOVA Post-Test Means Comparison between Experimental and Control Group

| Tests of Between-Subjects Effects | | | | | | |
|--|----------------------------|----|-------------|--------|------|------------------------|
| Dependent variable: Treatment motivation post-test | | | | | | |
| Source | Type III sum of squares | Df | Mean square | F | Sig. | Partial Eta squared |
| Corrected model | 8307.065 ^a | 6 | 1384.511 | 27.545 | .000 | .834 |
| Intercept | 519.989 | 1 | 519.989 | 10.345 | .003 | .239 |
| Treatment motivation | 4026.325 | 1 | 4026.325 | 80.104 | .000 | .708 |
| Pre-test | | | | | | |
| 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)

According to Table 4.12, there was a significant difference in the treatment motivation means $F(1, 33) = 41.63, p = .00, \eta_p^2 = .56$ between the experimental and the control group

at a $p > .05$. From the results, since the P value was less than .05, the researcher rejected the null hypothesis in favour of the alternative hypothesis that there are significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. The experimental group had a significantly higher mean than the control group. This suggests that MBI is associated with significantly higher outcomes in treatment motivation compared to the standard of care only. The findings seem to indicate that the four-week MBI had a positive effect on improvement of TM among substance use disorder clients.

In addition, the magnitude of the effect of MBI on treatment motivation variance based on being a member of one of the groups (experimental or control) is $F(1, 33) = 41.63$, $p = .00$, $\eta_p^2 = .56$. This shows that after controlling for other variables, the MBI accounted for 56% of the variance in treatment motivation based on group membership (experimental or control group). According to the Cohen's guidelines, the range of partial eta squared is 0-1 where 0 means no contribution to the variance of treatment motivation based on group membership, while 1 means highest contribution to the variance. Therefore, the statistic indicates that the effect size was medium.

To determine the nature of the differences in treatment motivation between the two groups (experimental and control group), the Bonferroni post-hoc test was conducted. The results are as presented in Table 4.13.

Table 4. 13***Post-hoc Test for Size of the Main Effect of the Music-Based Intervention*****Pairwise Comparisons**

Dependent variable: Treatment motivation post-test

| (I) Group | (J) Group | Mean Difference (I-J) | Std. Error | Sig. ^b | 95% Confidence interval for difference | |
|--------------|--------------|-----------------------|------------|-------------------|--|-------------|
| | | | | | Lower bound | Upper bound |
| membership | membership | | | | | |
| Experimental | Control | 14.659 [*] | 2.272 | .000 | 10.037 | 19.282 |
| Control | Experimental | -14.659 [*] | 2.272 | .000 | -19.282 | -10.037 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

The Bonferroni post-hoc test, as presented in Table 4.13, showed that the mean difference of TM between the experimental and control groups was MD= 14.66 (10.204 -19.28). This difference was significant at $p=.00$ indicating the level of TM in the experimental group was significantly different from the control group at post-test. This was reported at $p> .05$. Therefore, the difference lies on the experimental group which suggests that MBI complements that standard of care in enhancing TM after controlling for pre-test among other covariates.

The findings show that there are significant differences between the experimental and the control groups. The experimental group has significantly higher TM means even after controlling for the covariates. This leads to the rejection of the null hypothesis and

acceptance of the alternative hypothesis that there are significant differences in treatment motivation (TM) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. The findings of this study match those of Silverman (2015) who established a significant increase in treatment motivation among the clients in the treatment group compared to the ones in the control group who had been exposed to music therapy. Unlike this study, Silverman's research administered a single session intervention to the substance use disorder patients in a detoxification unit where they stayed for a short time. This, therefore, shows that MBI can also be useful in enhancing treatment motivation in a long-term treatment facility. Prior to that, Dickerson et al. (2012) found out that music therapy, specifically the Drum-Assisted Recovery Therapy for Native Americans increased motivation for the substance use disorder clients to stay in recovery from their drugs of choice. Similar findings were documented by Ross et al. (2008) who found that music therapy enhanced treatment motivation among dually diagnosed clients. Another study that reported similar findings was that of Wu et al. (2019) who ascertained that music therapy enhanced treatment motivation among female clients with methamphetamine use disorder in their randomized controlled trial. Unlike the current study, Wu et al. (2020) focused solely on female patients with methamphetamine use disorder. Despite the fact that the participants of these studies were different from the ones in the present study, what is common among them all is that the music-based interventions applied seem to have enhanced treatment motivation of participants indicating that MBI may be of value in the treatment of both dually diagnosed and other substance use disorder clients without comorbidities.

The findings are inconsistent with Silverman's (2011) study among patients in a detoxification unit on 'The effects of music therapy on change readiness and craving'. He found no significant differences between the group that received music therapy and talk therapy on motivation. Perhaps the difference in findings was because in both studies, Silverman's music therapy intervention was done in a single session. Another study that was dissimilar to the current research was that of Jones (2005). The researcher found out that music therapy did not increase motivation to treatment. Jones' primary focus was to evoke emotional change among clients suffering from substance use disorders and not enhancing motivation for treatment. The fact that the current study's main focus was enhancing treatment motivation and, therefore, tailor-made the intervention for this purpose, could have made the difference.

The finding that MBI contributed to significantly higher TM could be because music used in the intervention changed the way the participants perceive substance use and consequently shaped their action towards change. A study conducted by Willis (1978) found out that music actively shapes possibilities for action and makes particular ways of being and feeling in real time. Similar findings were obtained by Frith (1978). The presence of music in the intervention played a role in showing a possibility of change and consequently an increase of motivation towards treatment.

It could also be that since the study used analysis of lyrics, this enabled the participants to gain insight into thoughts, feelings and behaviours that have been dominant in their lives. These identified thoughts, feelings and behaviours could have potentially sustained life in addiction. Studies have shown that music is useful in helping people gain insight on their

feelings, thoughts and behaviours (Bullard, 2011; Thomas, 2007). These insights could help them see the need for change and thus enhance their motivation to treatment in order to achieve the change.

In addition, the music used in this study was based on the various themes from the transtheoretical model of behaviour change that helped clients to reflect on their lives and become more aware of how the substance use lifestyle has contributed to their present difficulties and the need for change (Prochaska & DiClementi, 1984). Furthermore, the theme of self-efficacy as reflected in the song *Roar* by Katy Perry, in a way assured them of their ability to make the changes they desire, which in this case is sobriety from their drug of choice.

The current study's findings suggest that music-based intervention can be used as a complementary therapy in the treatment of substance use disorders especially on which is critical in clients entering, remaining and adhering to treatment.

4.4 MBI and Problem Recognition

The second objective sought to determine whether there were significant differences in the PR aspect of treatment motivation between clients exposed to MBI (treatment group) and those not exposed to MBI (control group).

ANCOVA was chosen to analyze data from the experimental and control groups, on the effectiveness of the music-based intervention on enhancing Problem Recognition (PR) among clients in a selected treatment centre in Kenya. This would enable the researcher

to compare data from the experimental and the control group while controlling for various covariates that may have an effect on the findings.

The data was tested to ensure that it meets various assumptions for the researcher to use ANCOVA in the analysis. The assumptions included normality of distribution, homogeneity of variance across the groups and a linear relationship between the covariate and the dependent variable. Pre-test data was used to test the assumptions.

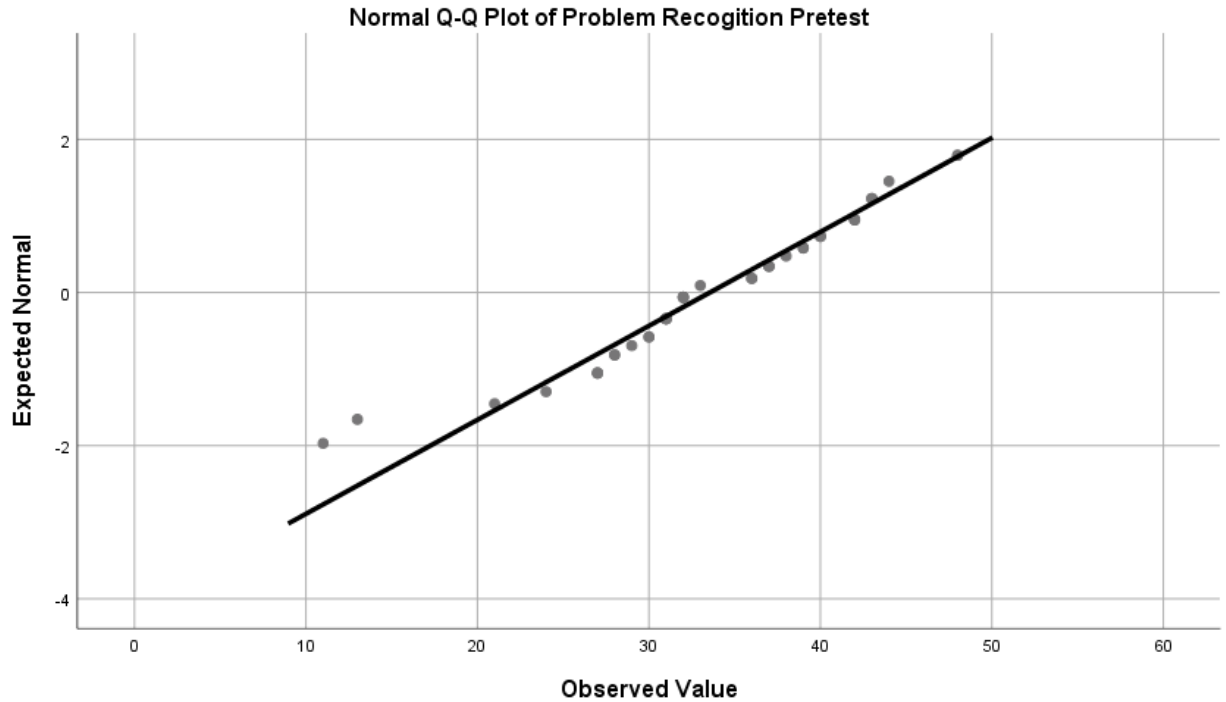
4.4.1 Test of ANCOVA Assumptions

In this section, the researcher will first test the assumptions then present the descriptive findings on music-based intervention and problem recognition on both the experimental and the control group. This will be followed by testing the null hypothesis that there are no significant differences in the PR aspect of treatment motivation between the experimental group (clients exposed to music-based intervention) and the control group (clients not exposed to MBI in selected treatment centres in Kenya).

To test the assumption on the normality of distribution, the Shapiro-Wilk test was used. This was to ensure that the mean's distribution was normal across the experimental and the control group. The findings are as presented on Figure 3.

Figure 3

Problem Recognition Scatter Plot for Normal Distribution of Means



As presented in Figure 3, the cases fall within +2 and -2. This suggests that the sampling distribution of the mean was normal for the problem recognition scores across the experimental and the control groups, $W(40) = .95, p = .10$. Since the p value was greater than .05, the assumption of normal distribution was met.

Secondly, the researcher examined data on the second assumption, namely, homogeneity of variance. This test is meant to find out whether the variance is equally distributed across the two independent groups, that is, the experimental and the control groups. To test whether there was equal distribution of variance across these two groups, the Levene's test was performed. The findings are presented in Table 4.14.

Table 4. 14*Levene's Test of Equality of Error Variances*

Dependent Variable: Problem Recognition Post-test

| F | df1 | df2 | Sig. |
|------|-----|-----|------|
| 1.14 | 1 | 38 | .29 |

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

a. Design: Intercept + Problem Recognition Pre-test + Age of Respondent + Level of Education + Nature of Admission + Number of Admissions + Group Membership

The difference in variance between the experimental and the control groups was not significant $F(1, 38) = 1.14, p = .29$ reported at the value $p < .05$ as shown on Table 4.14.

This indicates that the data met the assumption of equal variance.

This was followed by a test to find out whether the covariate was linearly related to the dependent variable. To test this assumption on the linear relationship between the covariate and the dependent variable (problem recognition), the Pearson product-moment correlations was carried out. The results were as presented on Table 4.15.

Table 4. 15***Pearson Correlation Linear Relationship Test***

| | | Problem recognition pre-test | Problem Recognition post-test |
|-------------------------------------|---------------------|------------------------------|-------------------------------|
| Problem recognition Pre-test | Pearson correlation | 1 | .785** |
| | Sig. (2-tailed) | | .000 |
| | N | 40 | 40 |
| Problem recognition Total post-test | Pearson correlation | .785** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 40 | 40 |

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

As Table 4.15 shows, there was a strong positive correlation between the covariate (problem recognition pre-test) and the dependent variable (problem recognition post-test) which was statistically significant at $r = .71$, $n = 40$, $p = .00$. This indicates that the covariate, PR pre-test, and the dependent variable, PR post-test, have a linear relationship. Therefore, the assumption on the linear relationship between the covariate and dependent variable was met in this study.

The data presented met the various assumptions needed to run the ANCOVA analysis and, therefore, the pre and post-test data from both the experimental and the control group on music-based intervention and problem recognition was analyzed.

4.4.2 MBI and Problem Recognition One-Way ANCOVA Analysis

In the following section, a comparison of data on the pre- and post-test levels of problem recognition between the experimental and the control group will be presented. Descriptive statistics on pre-test and post-test mean scores for both the experimental and the control group will be presented first. Then the researcher will test the null hypothesis, that there are no significant differences in the PR aspect of treatment motivation between the experimental group (clients exposed to music-based intervention) and the control group (clients not exposed to MBI) in selected treatment centres in Kenya, and the results will be presented second.

4.4.2.1 Descriptive Pre-test and Post-test Problem Recognition Means Comparison between the Experimental and the Control Group

A pre-test on problem recognition (PR) aspect of treatment motivation was conducted at the beginning of the study. Then the MBI was administered to the experimental group in addition to the standard of care, while the control group only received the standard of care. A post-test on the level of PR was carried out after the intervention on both experimental and control groups. To compare the pre-test and post-test means, ANCOVA was performed. The findings are as presented on Table 4.16.

Table 4. 16

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

| | N= | PR Pre- test means | Standard deviation | PR Post- test Means | Standard deviation | PR post- test adjusted means | Std. errors |
|-----------------------|-----------|-------------------------------|-------------------------------|------------------------------------|-------------------------------|---|------------------------|
| Experimental group | 20 | 34.05 | 8.71 | 40.85 | 7.20 | 40.46 ^a | 1.01 |
| Control group | 20 | 33.05 | 7.74 | 35.50 | 7.56 | 35.88 ^a | 1.01 |
| Total | 40 | 33.55 | 8.15 | 38.18 | 7.77 | | |

a. Covariates appearing in the model are evaluated at the following values: Problem Recognition Pre-test = 33.55, Age of the respondent = 4.28, Level of education = 2.75, Nature of Admission = 1.25, Number of Admissions = 1.30.

At pre-test the PR mean score of the experimental group was M= 34.05, SD= 8.71 while the control group had a mean score of M= 33.05, SD= 7.74 as shown on Table 4.16. The standard deviation of the experimental group (SD= 8.71) and that of the control group (SD= 7.74) was small, indicating that in both groups, there was less variability of participant's scores from the mean. A post-test was carried out after the experimental

group received the music-based intervention, while the control group only received the standard of care. It was found that the experimental group had a higher mean score ($M=40.85$, $SD=7.20$) compared to the control group ($M=35.50$, $SD=7.56$). The standard deviation of the control group ($SD=7.56$) was slightly higher than the one of the experimental group ($SD=7.20$), indicating that the PR scores of the control group were spread out from the mean compared to the ones of the experimental group. However, after controlling for a number of covariates, namely problem recognition pre-test scores, age, level of education, nature of admission and number of admission, the experimental group had a higher PR mean score of $M=40.46$, $SE=1.01$, compared to the control group that had $M=35.89$, $SE=1.01$. This indicates that the experimental group that received the MBI and standard of care had higher scores than the control group that only received the standard of care after removing the effects of the covariates.

Once the mean differences were established between the experimental and the control groups after controlling for the various covariates at post-test, the researcher sought to test the null hypothesis. The null hypothesis to be tested was: There are no significant differences in problem recognition (PR) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. One-way ANCOVA was computed while controlling for PR pre-test mean scores, age of the participants, level of education, nature of admission and number of admissions. The results are as presented in table 4.17.

Table 4. 17

One-way ANCOVA Problem Recognition Post-test Means Comparison between Experimental and Control Group

Tests of Between-Subjects Effects

Dependent variable: Problem recognition post-test

| Source | Type III sum of squares | Df | Mean square | F | Sig. | Partial eta squared |
|-------------------------|----------------------------|----|----------------|--------|------|------------------------|
| Corrected model | 1704.065 ^a | 6 | 284.011 | 14.381 | .000 | .723 |
| Intercept | 106.159 | 1 | 106.159 | 5.375 | .027 | .140 |
| Problem recognition | 921.061 | 1 | 921.061 | 46.639 | .000 | .586 |
| Pre-test | | | | | | |
| Age of respondent | 1.267 | 1 | 1.267 | .064 | .802 | .002 |
| Level of education | 33.635 | 1 | 33.635 | 1.703 | .201 | .049 |
| Nature of admission | .128 | 1 | .128 | .006 | .936 | .000 |
| Number of admissions | 1.465 | 1 | 1.465 | .074 | .787 | .002 |
| Group membership | 199.318 | 1 | 199.318 | 10.093 | .003 | .234 |
| Error | 651.710 | 33 | 19.749 | | | |
| Total | 60,649.000 | 40 | | | | |
| Corrected total | 2,355.775 | 39 | | | | |

a. R squared = .723 (Adjusted R squared = .673)

As presented on Table 4.17, there was a significant difference in the problem recognition (PR) means $F(1, 33) = 10.09, p = .00, \eta_p^2 = .23$ between the experimental and the control. From the results, since the P value was less than .05, the researcher rejected the null hypothesis in favour of the alternative hypothesis that there are significant differences in problem recognition (PR) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. The treatment group had a significantly higher means than the control group. This suggests that MBI is associated with significantly higher outcomes in problem recognition compared to the standard of care. The findings seem to indicate that the four-week MBI had a positive effect on improvement of PR among the substance use disorder clients.

On the magnitude of the effect of the MBI, the results show that MBI's contribution to the variance of problem recognition based on the group a participant is in either experimental or control group is $F(1, 33) = 10.09, p = .00, \eta_p^2 = .23$. This shows that after controlling for other variables, the MBI accounted for 23% of the variance of problem recognition based on group membership (experimental or control group). According to the Cohen's guidelines where the range of the partial eta squared is 0-1, this indicates that the MBI had a small effect size.

To determine the nature of the differences in problem recognition between the two groups (experimental and control group), the Bonferroni post-hoc test was conducted. The results are as presented in Table 4.18.

Table 4. 18

Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Problem Recognition (PR)

Pairwise comparisons

| Dependent variable: Problem recognition post-test | | | | | | |
|---|--------------|---------------------|-------|-------------------|--------------------------------------|--------|
| | | | | | 95% Confidence | |
| | | | | | interval for difference ^b | |
| (I) Group | (J) Group | Mean | Std. | | Lower | Upper |
| membership | membership | Difference | Error | Sig. ^b | bound | bound |
| | | (I-J) | | | | |
| Experimental | Control | 4.573 [*] | 1.440 | .003 | 1.644 | 7.502 |
| Control | Experimental | -4.573 [*] | 1.440 | .003 | -7.502 | -1.644 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

According to the Bonferroni post-hoc test the mean difference of PR (MD= 4.57(1.64-7.50)) between the experimental and control was significant at $p = .00$ as shown on Table 4.18. The significance level was reported at $p > .05$. This depicts that the level of PR in the experimental group was significantly higher than that of the control group at post-test. Therefore, the difference lies in the experimental group, which suggests that MBI complements that standard of care in enhancing PR after controlling for pre-test among other covariates.

The results show that there are significant differences in problem recognition aspect of treatment motivation between the experimental group and the control, with the experimental group having significantly higher means than the control group after statistically controlling for the covariates. Therefore, the null hypothesis is rejected in favour of the alternative hypothesis that there are significant differences in the problem recognition aspect of treatment motivation between the experimental group (exposed to MBI in addition to standard care) and the control (only received standard care). This study's findings are similar to those of Silverman's (2015) that showed significant group differences on problem recognition among clients in a detoxification unit. This may be evidence that music-based intervention is effective in increasing problem recognition in different addiction treatment environments.

While it may be true that music-based intervention as a treatment tool is effective in increasing problem recognition in different addiction treatment environments when compared with other therapies, these findings are not necessarily supported. Silverman (2009b) found no significant differences in problem recognition between groups that received talk therapy and the ones that were taken through music therapy. This could be because this study was conducted in a detoxification centre where the primary focus is medical treatment. Furthermore, the focus of Silverman's study was relapse prevention, which indicates that the participants were almost concluding their stay at the detoxification centre. The current study, on the other hand, engaged clients who were in their first few weeks of treatment and its focus was on enhancing recognition of the substance use problem.

The current findings could be due to the possibility that music-based intervention influences people's self-awareness. Research has shown that music serves various psychological functions when people listen to it. For example, Schäfer et al. (2013) in their study of music found out that one of the reasons people listen to music is to achieve self-awareness. Therefore, it is possible that the participants enhanced their self-awareness during the music-based intervention sessions while listening and interrogating the lyrics. Such self-awareness in turn increased the recognition of the drug use problem in their lives.

In addition, the music used in the intervention reflected the universality of the human experience. The lyrics of the song *The more I drink* by Blake Shelton reflects the life of someone recovering from alcohol use disorder and the experiences he had. His story is similar to people living with substance use disorder even here in Kenya, yet he is from a western country. This acted as a source of comfort and probably reduced the shame among participants upon realizing that they are not the only ones who suffer from substance use disorders and have had difficult and shameful experiences in their lives in addiction. According to Yalom and Molyn (2008), knowing people with similar experiences and working through the similar issues as one is, helps one realize that they are not alone in their experiences and encounters. The sense of universalism of human experience triggered by the lyrics probably acted as a bridge in acknowledging the problem of drug use addiction and the ensuing challenges of the dependence.

It is also possible that since the themes of the songs chosen were based on raising consciousness on the destructive effect of drug use, the negative effects on relationships

and the problems that addiction brought to their lives, the clients recognized the significant problems that were caused by use of drugs and increase in recognition of the drug use problem. This is reflected in the transtheoretical model of behaviour change, which posits that consciousness raising and evaluation of behaviour is important in influencing motivation towards change (Prochaska & DiClementi, 1984).

In the current study, the use of MBI may have improved problem recognition through the lyrics of the selected song. The clients were able to reflect about themselves and their lives through the songs that were singled out. The music-based intervention created an environment that was less threatening and provided a more experiential tool of processing their thoughts, emotions and experiences. This offers therapeutic benefits that may have resulted in increased problem recognition. This suggests that MBI may be a useful tool for inclusion as part of therapeutic intervention for clients in treatment settings for substance use disorders.

4.5 MBI and Desire for Help

The third objective sought to determine if there were significant differences in the desire for help (DH) aspect of treatment motivation between clients exposed to MBI (experimental group) and those not exposed to MBI (control group). The researcher used ANCOVA to test whether there were significant differences in post-test scores of treatment motivation after controlling for various pre-tests and other covariates between experimental and control groups.

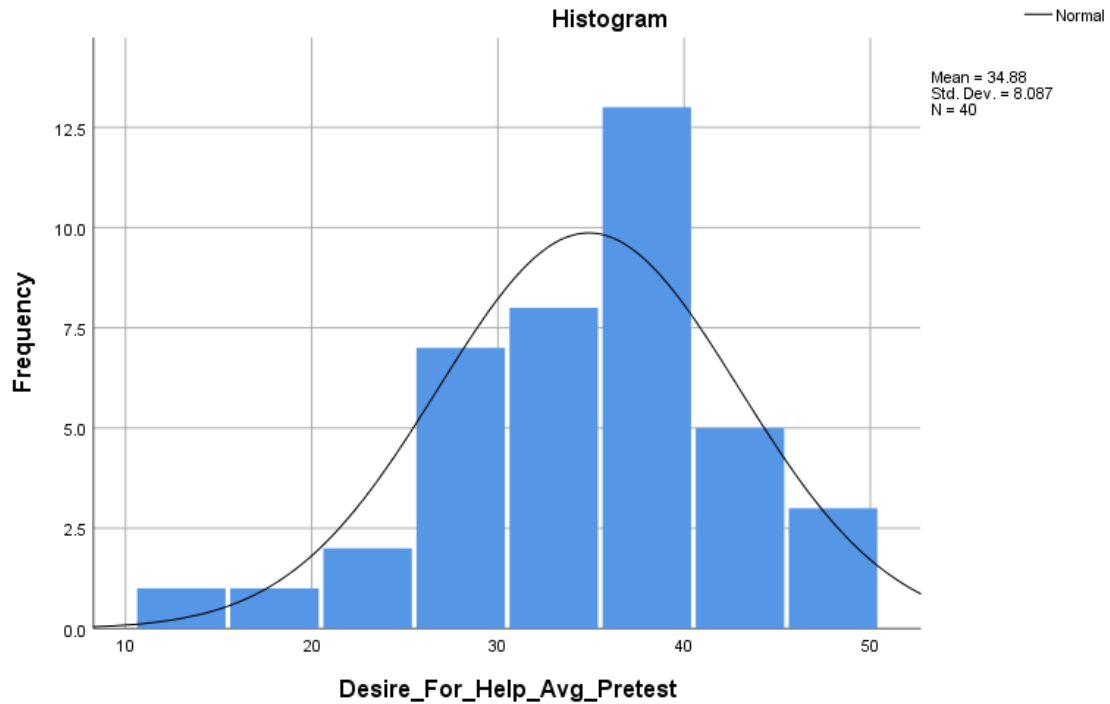
For the researcher to use ANCOVA in the analysis of data, various assumptions had to be met. These assumptions were normality of distribution, homogeneity of variance across

the groups and a linear relationship between the covariate and the dependent variable. Pre-test data was used to test these assumptions.

4.5.1 Test of Analysis of Covariance Assumptions

In this section, the researcher will first test the assumptions then present the descriptive findings on music-based intervention and problem recognition on both the experimental and the control group. This will be followed by testing the null hypothesis that there are no significant differences in the DH aspect of treatment motivation between the experimental group (clients exposed to music-based intervention) and the control group (clients not exposed to MBI) in selected treatment centres in Kenya.

The Shapiro-Wilk test was used to test the assumption on the normality of distribution. This was to ensure that the distribution of the mean was normal across the experimental and the control group. The findings are as shown in Figure 4.

Figure 4*Desire for Help Pre-test Mean Normal Distribution Histogram*

As shown in Figure 4, at pre-test, the level of desire for help (DH) was normally distributed, $W(40) = .97$, $p = .34$, and since the p value was greater than .05 the assumption of normal distribution was met. This suggests that the sample distribution of the desire for help (DH) mean scores was normal across the experimental and the control groups.

In order to test the assumption of homogeneity of variance across groups, the Levene's test was performed. This was meant to find out whether the variance was equally distributed across the independent groups, namely the experimental and control groups. The findings are as presented in Table 4.19.

Table 4. 19***Levene's Test of Equality of Error Variances***

Dependent variable: Desire for help post-test

| F | df1 | df2 | Sig. |
|------|-----|-----|------|
| 2.41 | 1 | 38 | .13 |

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

a. Design: Intercept + Desire for help Pre-test + Age of respondent + Level of education + Nature of admission + Number of admissions + Group membership

Table 4.19 shows that the difference in variance between the experimental and the control groups was not significant $F(1, 38) = 2.41, p = .13$ reported at the value $p < .05$ as shown on table 8. This indicates that the data met the assumption of equal variance.

Lastly, the researcher sought to find out whether there was a linear relationship between the covariate and the dependent variable. The covariate was desire for help (DH) pre-test score while the dependent variable was DH post-test score. Pearson product moment was used to test this assumption. The findings are as presented in Table 4.20

Table 4. 20*Pearson Product-Moment Linear Relationship Test*

| | | Desire for help pre-test | Desire for help post-test |
|---------------------------|---------------------|-----------------------------|------------------------------|
| Desire for help pre-test | Pearson correlation | 1 | .703** |
| | Sig. (2-tailed) | | .000 |
| | N | 40 | 40 |
| Desire for help post-test | Pearson correlation | .703** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 40 | 40 |

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

According to the Pearson product-moment correlation coefficient, there was a strong positive correlation between the covariate (desire or help pre-test) and the dependent variable (desire for help post-test) which was statistically significant since p was less than .05 at $r = .70$, $n = 40$, $p = .00$ as shown on Table 4.20. This indicates that the covariate, DH pre-test, and the dependent variable, DH post-test, have a linear relationship and thus, the assumption on the linear relationship between the covariate and dependent variable was met in this study.

Since the data presented met the various assumptions needed to run the ANCOVA analysis, the pre- and post-test data from both the experimental and the control group on music-based intervention and desire for help was computed.

4.5.2 MBI and Desire for Help One-Way ANCOVA Analysis

The current study sought to find out whether there are significant differences in the desire for help (DH) aspect of treatment motivation between the experimental group (that received music-based intervention and standard of care) and the control group (that received the standard of care only). This section will present a comparison of pre- and post-test data on the levels of DH between the two groups mentioned earlier. It will start with a presentation on the descriptive statistics on the pre-test and post-test mean scores for both the experimental and the control groups. This will be followed by hypothesis testing. The hypothesis that was tested was: There are no significant differences in the DH aspect of treatment motivation between the experimental group (clients exposed to music-based intervention) and the control group (clients not exposed to MBI) in selected treatment centres in Kenya. Lastly, a post-hoc analysis will be presented.

4.5.2.1 Descriptive Pre-test and Post-test Desire for Help Means Comparison

between the Experimental and the Control Group

At the beginning of the study, a pre-test on the levels of DH aspect of treatment motivation was conducted. Then the experimental group received the MBI in addition to the standard of care for four weeks while the control group only received the standard of care within the same period. A post-test on the level of DH was carried out after the intervention on both experimental and control groups in order to compare the pre-test and post-test means. ANCOVA was performed and the descriptive statistics are as presented in Table 4.21.

Table 4. 21

Descriptive Desire for Help (DH) Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group

| | N | DH Pre- test means | Standard Deviation | DH Post- test means | Standard deviation | DH Post- test adjusted means | Std. errors |
|-----------------------|----------|-----------------------------------|-------------------------------|------------------------------------|-------------------------------|---|------------------------|
| Experimental group | 20 | 33.90 | 8.67 | 42.40 | 6.49 | 43.14 ^a | 0.86 |
| Control group | 20 | 35.85 | 7.56 | 36.85 | 6.89 | 36.11 ^a | 0.86 |
| Total | 40 | 34.88 | 8.09 | 39.62 | 7.18 | | |

a. Covariates appearing in the model are evaluated at the following values: Desire for help pre-test = 34.88, Age of the respondent = 4.28, Level of education = 2.75, Nature of admission = 1.25, Number of admissions = 1.30.

At pre-test, the DH mean score of the experimental group was $M= 33.90$, $SD= 8.67$ while the control group had a mean score of $M= 35.85$, $SD= 7.56$ as shown in Table 4.21. A post-test was carried out after the experimental group received the music-based intervention, while the control group only received the standard of care. It was found that the experimental group had a higher mean score ($M= 42.40$, $SD= 6.49$) compared to the control group that had a slight increase ($M= 36.85$, $SD= 6.89$). At post-test, both

experimental and control groups had smaller standard deviations of 6.49 and 6.89 respectively, indicating that most scores in both groups were clustered around the means of the two groups. Further, after controlling for a number of covariates, namely desire for help pre-test scores, age, level of education, nature of admission and number of admission, the experimental group had a DH mean score of $M= 43.14$, $SE= .86$, compared to the control group that had $M= 36.11$, $SE= .86$. This indicates that the experimental group that received the MBI and standard of care had higher scores than the control group that only received the standard of care after removing the effects of the covariates.

In addition, the researcher sought to test the null hypothesis that there are no significant differences in desire for help (DH) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. To test this hypothesis, one-way ANCOVA was used while controlling for DH pre-test mean, age of participants, level of education, nature of admission and number of admissions. The findings are presented in Table 4.22.

Table 4. 22

One-way ANCOVA Desire for Help Post-test Means Comparison between Experimental and Control Group

| Tests of Between-Subjects Effects | | | | | | |
|---|-------------------------|----|-------------|--------|------|---------------------|
| Dependent variable: Desire for help post-test | | | | | | |
| Source | Type III sum of squares | Df | Mean square | F | Sig. | Partial eta squared |
| Corrected model | 1533.613 ^a | 6 | 255.602 | 17.655 | .000 | .762 |
| Intercept | 210.579 | 1 | 210.579 | 14.545 | .001 | .306 |
| Desire for help pre-test | 691.389 | 1 | 691.389 | 47.756 | .000 | .591 |
| Age of respondent | .107 | 1 | .107 | .007 | .932 | .000 |
| Level of education | 24.287 | 1 | 24.287 | 1.678 | .204 | .048 |
| Nature of admission | 48.604 | 1 | 48.604 | 3.357 | .076 | .092 |
| Number of admissions | .004 | 1 | .004 | .000 | .986 | .000 |
| Group membership | 476.385 | 1 | 476.385 | 32.905 | .000 | .499 |
| Error | 477.762 | 33 | 14.478 | | | |
| Total | 64817.000 | 40 | | | | |
| Corrected total | 2011.375 | 39 | | | | |

a. R squared = .762 (Adjusted R squared = .719)

According to Table 4.22, there was a significant difference in desire for help (DH) means $F(1, 33) = 32.91, p = .00, \eta_p^2 = .50$ between the experimental and the control. From the results, since the P value was less than .05, the researcher rejected the null hypothesis in

favour of the alternative hypothesis that there are significant differences in desire for help (DH) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. This indicates that the treatment group had significantly higher DH means compared to the control group. This suggests that MBI is associated with significantly higher outcomes in desire for help while complementing the standard of care, compared to the standard of care alone. The findings seem to indicate that the four-week MBI had a positive effect on the improvement of DH among the clients with substance use disorder. Therefore, the MBI in addition to the standard of care could be more effective in the enhancement of DH means than the standard care only.

Furthermore, the magnitude of the effect of the MBI on DH variance based on group membership was significant $F(1, 33) = 32.91, p = .00, \eta_p^2 = .50$. This shows that after controlling for other variables, the MBI accounted for 50% of the variance of DH based on group membership (experimental or control group). According to the Cohen's guidelines the range of effect size is 0-1, where 0 is no effect while 1 is large effect, this indicates that the MBI's effect size on DH variance was moderate.

In order to find out the nature of the differences in desire for help between the experimental and the control groups, the Bonferroni post-hoc test was computed. The findings are as presented on Table 4.23.

Table 4. 23***Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Desire for Help*****Pairwise Comparisons**

| Dependent variable: Desire for help post-test | | | | | | |
|---|--------------|---------------------|-------|-------------------|-----------------------------|-------------|
| | | Mean | | | 95% Confidence interval | |
| (I) Group | (J) Group | difference | Std. | | for difference ^b | |
| membership | membership | (I-J) | Error | Sig. ^b | Lower bound | Upper bound |
| Experimental | Control | 7.022 [*] | 1.224 | .000 | 4.531 | 9.512 |
| Control | Experimental | -7.022 [*] | 1.224 | .000 | -9.512 | -4.531 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

As shown in Table 4.23, the Bonferroni post-hoc test, showed that the mean difference of DH between the experimental and control groups was $M = 7.02$ (4.53 -9.51). This difference was significant at $p = .00$ indicating the level of DH in the experimental group was significantly different from the control group at post-test. This was reported at the significance level $p > .05$. Therefore, the difference lies in the experimental group, which suggests that MBI complements that standard of care in enhancing DH after controlling for pre-test among other covariates.

According to the findings of this study, the MBI had an influence on the level of desire for help among the clients exposed to it. The results show that there were significant

differences in desire for help between the experimental group and the control group with the experimental group having a significantly higher mean in DH compared to the control group after statistically controlling for the covariates. Therefore, the null hypothesis is rejected in favour of the alternative hypothesis that there are significant differences in desire for help at post-test between the treatment and the control group. These findings are similar to those of Silverman (2011) that showed clients who received the MBIs (rockumentary and recreational music) had higher means compared to the ones who only received talk therapy in contemplation and action subscales. Prochaska et al. (1992; 1993) in their motivation model posit that the contemplation stage of change is characterized by desire for help. Silverman's study shows a state where the rise of means in the contemplation subscale could reflect a rise in their desire for help. The study also found out that the ones who received the rockumentary music therapy, characterized by the history of the artists in relation to drug abuse and lyric analysis had higher means compared to the other two groups (recreational music and talk therapy). In Silverman's study, the history of the artists in relation to drug abuse could be a confounding factor. The current study did not utilize the history of the artistes as part of the intervention and controlled for other covariates but still found out that MBI is effective in enhancing the desire for help.

Silverman (2015) found a significant difference between the mean scores of the treatment and the control group in the desire for help scale. Despite the fact that Silverman's study was done in a detoxification centre and utilized the single session two-group wait-list design, the findings were similar. This could be because, like the current study, his

research focused on enhancing desire for help, which is an aspect of treatment motivation, hence the similarity in the findings.

The findings of the current study are inconsistent with those of Silverman (2009b) that did not find significant differences between the treatment and the control groups in desire for help. This could be because the focus of his intervention was relapse prevention and not the treatment of the substance use disorder. It could also be because this study may have included all clients in the detoxification unit since it did not have an inclusion or exclusion criteria and a different sample population from the current study.

From the results, the experimental group had significantly higher means in DH compared to the control group. This could be because MBI used a reflective approach where the clients got an opportunity to reflect on their lives based on the lyrics of the song and experiences of the songwriters that were prosocial. Studies show that listening to songs with prosocial lyrics leads to more prosocial thinking and behaviour (Greitmeyer, 2009).

Further analysis showed that the mean difference was significant with the difference lying in the experimental group that was exposed to MBI. This shows that the MBI can be used to enhance DH among clients who are at the contemplation and preparation stages in the stages of change as proposed by Prochaska and DiClemente (1974). Clients at these stages know the merits and demerits of change. The balance between these pros and cons may, however, cause ambivalence and, therefore, there may be need to enhance their desire for help to amplify the benefits of change and move them to the action stage. As the findings show, MBI may be useful in increasing their desire for help through creating a positive decisional balance that will help them move to the action stage.

The current study findings seem to suggest that the music-based intervention increases the client's affinity to seek help. This could be because after they were more aware of the problems of drug use and the behaviour challenges that came with addiction, they felt compelled to make the needed changes through help from other people. It could also be that the participants were resonating with the experiences shared in the lyrics written by a stranger from a different part of the world. This made them realize that they were not the only ones going through substance use disorder problems and, therefore, seeking help is not at all a cause for shame and indignity.

The fact that the findings of this study show that standard care did not yield an impact on desire for help, it could mean that many clients could be in treatment but they are actually not ready for help. As a result, they may stay in treatment to the end but relapse immediately they are out. This is because, while they received help that they needed, the desire to receive that help was not there. Since the MBI has demonstrated its capacity to enhance desire for help, it is an important intervention that could be incorporated into the current standard of care treatment.

4.6 MBI and Treatment Readiness

The fourth objective sought to determine whether there were significant differences in the treatment readiness (TR) aspect of treatment motivation between clients exposed to music-based intervention (MBI) (treatment group) and those not exposed to MBI (control group).

To analyze data on music-based intervention and treatment readiness, the researcher used the parametric test, ANCOVA. As mentioned earlier, in order to successfully use

ANCOVA, the data has to meet various assumptions. The assumptions that were tested include normality of distribution, homogeneity of variance across the groups and a linear relationship between the covariate and the dependent variable. Pre-test data was used to examine the named assumptions.

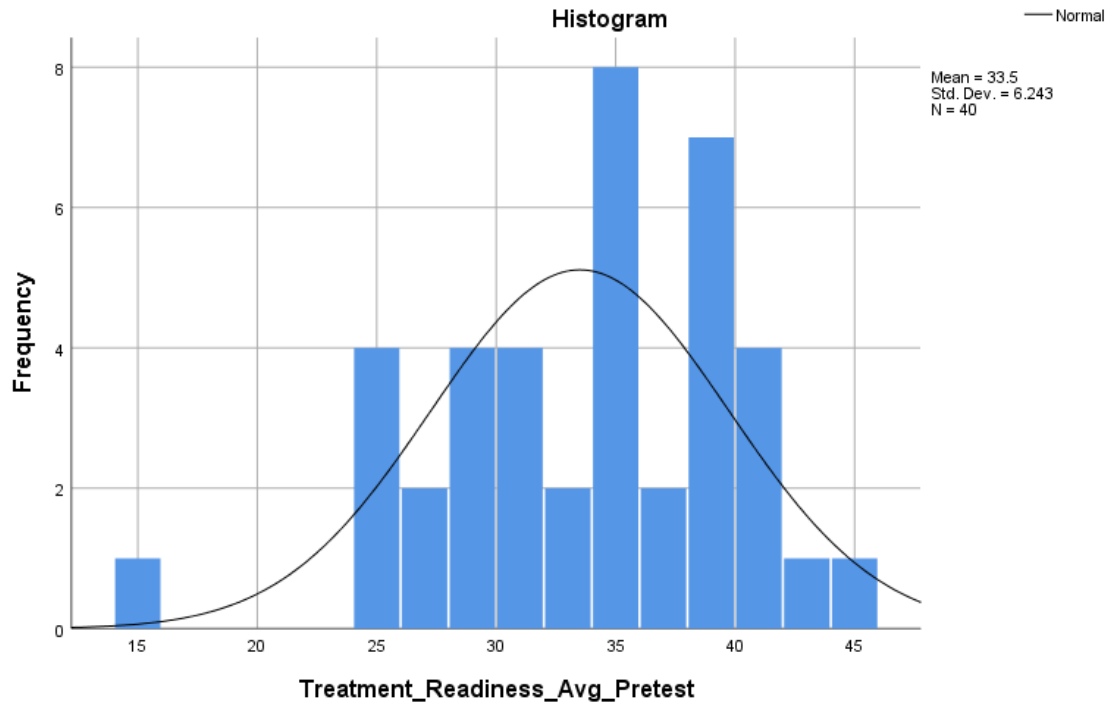
4.6.1 Test of Analysis of Covariance Assumptions

In the following section, the findings on the various assumptions will be presented. This will be followed by a presentation of the descriptive statistics on MBI and treatment readiness for both the experimental and control groups. Thereafter, the null hypothesis that there are no significant differences in the TR aspect of treatment motivation between the treatment group (clients exposed to MBI in addition to the standard of care and the control group (clients exposed only to standard of care) in selected treatment centres in Kenya, will be tested and the results presented.

The Shapiro- Wilk test was used to test the normality of distribution. This was to determine whether the treatment readiness means were distributed normally across the experimental and the control groups. To demonstrate the normal distribution across the participants in the two groups (experimental and control) the histogram was computed as presented in Figure 5.

Figure 5

Treatment Readiness Pre-test Mean Normal Distribution Histogram



The level of treatment readiness was normally distributed at pre-test, as shown in Figure 5. Since the p value was greater than .05, at $W(40) = .96$, $p = .20$, the assumption of normal distribution was met. The histogram gives a visual presentation of the normality of distribution of scores across the participants of the two groups. This suggests that the sample distribution of the treatment readiness mean scores was normal across the experimental and the control groups.

The second assumption was on homogeneity of variance across groups. This assumption is made to ensure that the variance is equally distributed across the two independent groups, which in this case are the experimental and control groups.

To examine the assumption of homogeneity of variance, the Levene's test was used and the results are as presented in Table 4.24.

Table 4. 24

Levene's Test of Equality of Error Variances

Dependent variable: Treatment readiness post-test

| F | df1 | df2 | Sig. |
|------|-----|-----|------|
| .019 | 1 | 38 | .892 |

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

a. Design: Intercept + Treatment readiness pre-test + Age of respondent + Level of education + Nature of admission + Number of admissions + Group membership

As presented in Table 4.24, there are contrasts in variance across the two groups, experimental and control, was not significant $F(1, 38) = .02, p = .89$ reported at p value .05. This indicates that the data met the second assumption of equality of variance.

The third assumption was on the linear relationship between the covariate and the dependent variable. This assumption is significant in the use of ANCOVA because if the covariate (treatment readiness pre-test) and the dependent variable (treatment readiness post-test) do not have a linear relationship, there is a risk of bias when the means are adjusted. To test this assumption, the Pearson product-moment was computed. The results are as presented in Table 4.25.

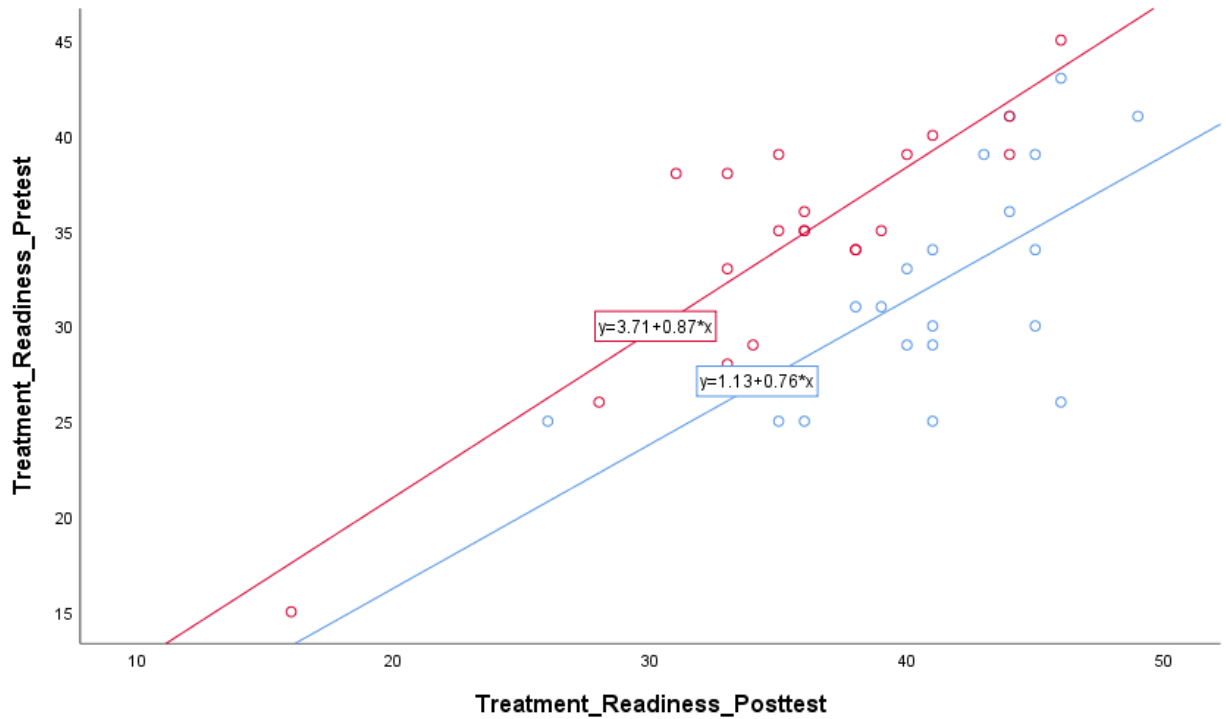
Table 4. 25*Pearson Product-Moment Linear Relationship Test*

| | | Treatment readiness pre-test | Treatment readiness post-test |
|---------------------|---------------------|---------------------------------|----------------------------------|
| Treatment readiness | Pearson correlation | 1 | .601** |
| Pre-test | Sig. (2-tailed) | | .000 |
| | N | 40 | 40 |
| Treatment readiness | Pearson correlation | .601** | 1 |
| Post-test | Sig. (2-tailed) | .000 | |
| | N | 40 | 40 |

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

As presented in Table 4.25, the results on the Pearson product-moment show a strong positive correlation between TR pre-test, which is the covariate, and TR post-test which is the dependent variable. It shows that the correlation was statistically significant since p was less than .05 at $r = .60$, $n = 40$, $p = .00$. This indicates that the covariate and the dependent variable had a linear relationship. Therefore, the assumption that the covariate and the dependent variable have a linear relationship was met in this study.

To demonstrate this relationship, a scatter plot was computed as presented in Figure 6.

Figure 6***Treatment Readiness Linear Relationship Scatter Plot***

As the scatter plot in Figure 6 shows, there are lines running almost parallel through the scores. There are no deviations from linearity. Thus, we can conclude that the data met the assumption of linearity between the covariate and the dependent variable.

Since the data met the assumptions needed, the researcher, using ANCOVA, went on to analyze the pre-test and post-test data on music-based intervention and treatment readiness from the experimental and the control groups.

4.6.2 MBI and Treatment Readiness One-Way ANCOVA Analysis

The fourth objective sought to determine whether there are significant differences in the treatment readiness (TR) aspect of treatment motivation between the experimental (that

received music-based intervention and standard of care) and the control group (that only received the standard of care).

This section will present the findings on pre-test and post-test data on the levels of TR between the experimental group and the control group. Firstly, descriptive statistics on the treatment readiness pre-test and post-test means will be presented. Secondly, the null hypothesis that there are no significant differences in the TR aspect of treatment motivation between the experimental group (clients exposed to music-based intervention) and the control group (clients not exposed to MBI) in selected treatment centres in Kenya will be tested and results presented. And thirdly, the researcher will present a post-hoc analysis of data on treatment readiness.

4.6.2.1 Descriptive Pre-test and Post-test Treatment Readiness Means Comparison between the Experimental and the Control Group

A pre-test on the levels of treatment readiness aspect of treatment motivation was conducted at the onset of the study. Then a four-week music-based intervention was administered to the experimental group in addition to the standard of care while the control group only received the standard of care. After the four weeks, a post-test on the level of TR was conducted on both groups in order to compare the pre-test and post-test means. The descriptive statistics are as presented in Table 4.26.

Table 4. 26

Descriptive Treatment Readiness (TR) Pre-test and Post-test Means Comparison between the Experimental and the Control Group

| | N= | TR Pre- test means | Standard Deviation | TR post- test means | Standard deviation | TR post- test adjusted means | Std. errors |
|-----------------------|-----------|-------------------------------|-------------------------------|------------------------------------|-------------------------------|---|------------------------|
| Experimental group | 20 | 32.30 | 5.91 | 41.25 | 5.05 | 42.07 ^a | 0.83 |
| Control group | 20 | 34.70 | 6.48 | 35.80 | 6.52 | 34.98 ^a | 0.83 |
| Total | 40 | 33.50 | 6.24 | 38.52 | 6.38 | | |

a. Covariates appearing in the model are evaluated at the following values: Treatment readiness = 33.50, Age of the respondent = 4.28, Level of education = 2.75, Nature of admission = 1.25, Number of admissions = 1.30.

At the beginning of the study, the experimental group's treatment readiness pre-test score was M= 32.30, SD= 5.91 while the control group's was M= 34.70, SD= 6.48 as shown on Table 4.26. The control group (SD= 6.48) had higher standard deviation from the mean compared to the experimental group (SD= 5.91). This indicates that the TR scores of the participants in the control group were spread out from the mean compared to those of the ones in the experimental group. After the MBI was administered to the experimental

group in addition to the standard of care, while the control group only received the standard of care, the experimental group had a higher score ($M= 41.25$, $SD= 5.05$) than the control group that had a slight increase ($M= 35.80$, $SD= 6.52$). In terms of standard deviation of the two groups at post-test, most of the experimental group's TR scores seem to be clustered around the mean compared to the ones of the control group ($SD= 6.52$). This indicates that there was a greater variability in TR mean scores in the control group than in the experimental group. The researcher further, controlled for a number of covariates, namely treatment readiness pretest scores, age, level of education, nature of admission and number of admission, and the findings show that the experimental group had a TR mean score of $M= 42.07$, $SE= .83$, compared to the control group that had a mean score of $M= 34.98$, $SE= .83$. This indicates that the experimental group that received the MBI and standard of care had higher scores than the control group that only received the standard of care even after controlling for the effects of the covariates.

To test the hypothesis that there are no significant differences in treatment readiness (TR) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya, while controlling for the covariates, ANCOVA was computed. The results are as presented in Table 4.27.

Table 4. 27

One-way ANCOVA Treatment Readiness Post-test Means Comparison between Experimental and Control Group

Tests of Between-Subjects Effects

Dependent variable: Treatment readiness posttest

| Source | Type III sum of squares | Df | Mean square | F | Sig. | Partial eta squared |
|----------------------|----------------------------|----|----------------|--------|------|------------------------|
| Corrected model | 1151.178 ^a | 6 | 191.863 | 14.495 | .000 | .725 |
| Intercept | 138.710 | 1 | 138.710 | 10.480 | .003 | .241 |
| Treatment readiness | 393.424 | 1 | 393.424 | 29.723 | .000 | .474 |
| Pre-test | | | | | | |
| Age of respondent | 7.880 | 1 | 7.880 | .595 | .446 | .018 |
| Level of education | .383 | 1 | .383 | .029 | .866 | .001 |
| Nature of admission | 49.304 | 1 | 49.304 | 3.725 | .062 | .101 |
| Number of admissions | 10.687 | 1 | 10.687 | .807 | .375 | .024 |
| Group membership | 474.545 | 1 | 474.545 | 35.852 | .000 | .521 |
| Error | 436.797 | 33 | 13.236 | | | |
| Total | 60955.000 | 40 | | | | |
| Corrected total | 1587.975 | 39 | | | | |

a. R squared = .725 (Adjusted R squared = .675)

Table 4.27 indicates that there was a significant difference in treatment readiness (TR) means $F(1, 33) = 35.85, p = .00, \eta_p^2 = .52$ between the experimental and the control. From

the results, since the P value was less than .05, we reject the null hypothesis in favour of the alternative hypothesis that there are significant differences in treatment readiness (TR) between clients exposed to music-based intervention (MBI) and the control group in selected treatment centres in Kenya. This indicates that the treatment group had significantly higher TR means compared to the control group. This suggests that music-based intervention (MBI) is associated with significantly higher outcomes in treatment readiness, compared to the standard of care. The finding seems to suggest that the MBI had a positive effect on the enhancement of treatment readiness among the substance use disorder clients. And thus, MBI coupled with the standard care was effective in enhancing TR compared to standard care only.

In terms of the magnitude of the effect, MBI had an effect size of $F(1, 33) = 35.85$, $p = .00$, $\eta_p^2 = .52$ on TR's variance based on group membership (whether one is in the experimental or control group). This shows that after controlling for other variables, the MBI accounted for 52% of the variance of TR based on group membership (experimental or control group). According to the Cohen's guidelines, this indicates that the effect size was medium.

To determine the nature of the differences in treatment readiness between the experimental and the control groups, the Bonferroni post-hoc test was carried out. The results are as presented in Table 4.28.

Table 4. 28

Bonferroni Post-hoc Test for Size of the Main Effect of the Music-Based Intervention on Treatment Readiness

Pairwise Comparisons

| Dependent variable: Treatment readiness post-test | | | | | | |
|---|----------------------|-----------------------|------------|-------------------|---|-------------|
| (I) Group membership | (J) Group membership | Mean Difference (I-J) | Std. error | Sig. ^b | 95% Confidence interval for difference ^b | |
| | | | | | Lower bound | Upper bound |
| Experimental | Control | 7.090* | 1.184 | .000 | 4.681 | 9.499 |
| Control | Experimental | -7.090* | 1.184 | .000 | -9.499 | -4.681 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

The main difference in treatment readiness ($M = 7.09$ (4.68-9.50)) between the experimental and the control group was significant ($p = .00$) as depicted in Table 4.28. The p value was reported at .05. This indicates that that level of treatment readiness in the experimental group was significantly higher than that of the control group at post-test, even after controlling for the covariates, TR pre-test mean, age of participants, level of education, nature of admission and number of admissions. Thus, the difference lies on the experimental group, which suggests that the music-based intervention complements the standard of care in enhancing TR after controlling for the covariates.

This research found that there are significant differences in TR between the clients in the experimental group and those in the control group after controlling for covariates. The

ones in the experimental group had significantly higher TR means compared to the ones in the control group. These results echo those of Silverman (2015) that found significant differences between the treatment and the control group, where the treatment group had higher means than the control group in treatment readiness. Similarly, Silverman (2011) found that patients in the music therapy treatment group scored significantly higher in contemplation and action stage than their counterparts in the talk therapy group, which indicates that the clients are ready for treatment and actually engage in it. The difference between Silverman's (2011) and the current study is that this research (the current study) did not compare two interventions instead it had a control group that only received the standard care while the experimental group was exposed to MBI in addition to standard care.

These findings are not consistent with those of Silverman (2009b). He found no significant differences in treatment eagerness between clients in the treatment group and those in the control group. Despite the lack of significance, the treatment group had slightly higher scores than the control group.

The current findings could be because the MBI addressed self-efficacy through the song *Roar* by Katy Perry to emphasize on the clients' power to overcome the substance use disorder and enhance their own self-confidence to cope with the difficulties of treatment. The clients may have a perceived sense of powerlessness in dealing with the substance use disorder problem and, therefore, there was need to change this perception.

Boullé (2011) found out that music helps in changing perceptions. Its use in the intervention may have assisted in changing their 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 themselves through treatment. Silverman (2014) found out that music therapy increased drug avoidance self-efficacy. This shows that music-based interventions may be helpful in increasing self-efficacy. 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 Prochaska and DiClementi (1984) posit in the transtheoretical model of behaviour change, self-efficacy plays a role in clients engaging in the change process, which in our case is treatment. With the help of the MBI, perhaps their sense of self-efficacy was enhanced and hence the increase in treatment readiness.

In addition, it is possible that through the lyrics of various songs, the participants were able to reframe their perception of the substance use disorder as well as treatment. As cited by Standley (2014), Hilliard (2001) found that during lyric analysis discussion, reframing can be used to change cognitive distortions that the client may have. Therefore, clients' views about treatment could have been altered in the discussions, hence the enhancement of treatment readiness among clients in the experimental group. Therefore, the music-based intervention (specifically using lyric analysis), which has shown an ability to significantly enhance treatment readiness, may be an important tool in increasing treatment readiness that can be incorporated into the current treatment protocol.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the summary of key findings, conclusions and recommendations drawn from the findings of this study. The chapter begins with the summary of key findings and then proceeds to present the conclusions inferred from the findings. The final section of this chapter is on the recommendations arising from the research.

5.2 Summary of Key Findings

The following is a summary of results from the data analysis:

In terms of demographics, majority of the participants were aged between 33 and 37 years (22.5%) with 92.5% of them being male. Most of them had attained university education (75%). A few of them had a secondary education as their highest qualification. Of the participants, 62.5% were in salaried employment. On the nature (voluntary or involuntary) of admission, 75% of the participants were voluntarily admitted into the treatment facility and 80% of them were in their first admission.

In terms of objective one which sought to determine whether there were significant differences in treatment motivation (TM) between clients exposed to MBI and the control group in selected treatment centres in Kenya, the results showed that there were significant differences between the two groups, with the experimental group having higher means than the control group after controlling for covariates such as age, gender and level of education, among others.

Objective two sought to find out whether there were significant differences in the problem recognition aspect of TM between clients exposed to MBI and the control group in selected treatment centres in Kenya. The results established that there were significant differences between the experimental and the control group after controlling for covariates. Participants in the experimental group had significantly higher means in terms of problem recognition compared to the ones in the control group.

In terms of objective three which sought to determine whether there were significant differences in the desire for help aspect of TM between clients exposed to MBI and the control group in selected treatment centres in Kenya, the findings showed that there were significant differences between the experimental and the control groups even after controlling for various covariates. The experimental group had significantly higher means in terms of desire for help than the control group.

As for the fourth objective which sought to find out whether there were significant differences in the treatment readiness aspect of treatment motivation between clients exposed to MBI and the control group in selected treatment centres in Kenya, the findings established that there were significant differences between the experimental and the control group. The experimental group had higher treatment readiness means compared to the control group.

5.3 Conclusions

The research was designed to determine the effectiveness of music-based intervention in enhancing treatment motivation (TM) among clients in a selected substance use disorder treatment centre in Kenya. The following conclusions were derived:

On objective one that sought to determine whether there were significant differences in TM between clients exposed to MBI (experimental group) and those not exposed to MBI (control group), the study findings point to the conclusion that the music-based intervention is an effective tool in enhancing treatment motivation among clients with substance use disorders. The use of MBI resulted in significantly higher TM among the experimental group participants compared to the ones in the control group.

In terms of objective two that sought to determine whether there were significant differences in problem recognition aspect of treatment motivation between clients exposed to MBI (experimental group) and those not exposed to MBI (control group), the music-based intervention seems to have a positive effect on problem recognition among clients with substance use disorders having found significantly higher PR means in the treatment compared to the control group.

On objective three that sought to find out whether there were significant differences in the desire for help (DH) aspect of treatment motivation between clients exposed to MBI (experimental group) and those not exposed to MBI (control group), there seems to be an increased desire for help when music-based intervention is administered among clients with substance use disorder having resulted in significantly higher DH in the experimental group compared to the control group.

Lastly, in terms of objective four which sought to determine whether there were significant differences in the treatment readiness (TR) aspect of treatment motivation between clients exposed to MBI (experimental group) and those not exposed to MBI (control group), the conclusion is that music-based intervention seems to enhance

treatment readiness among clients in substance use disorder treatment centres in Kenya having found significantly higher TR means in the experimental group compared to the control group.

5.4 Recommendations

Based on the findings, the following general recommendations are made:

1. Substance use disorder treatment professionals need to embrace and incorporate complementary and alternative medical practices such as the music-based intervention (MBI) in their treatment programmes.
2. The professionals such as counsellors, psychologists and social workers who are involved in outreach programmes can use the MBI as a tool to motivate potential clients to enter, remain and adhere to treatment.
3. Due to the potential that music-based interventions have in the treatment of substance use disorders, the institutions of higher learning offering addiction treatment and mental health training should include music-based intervention and music therapy modules in their training programmes.
4. NACADA and the Ministry of Health should embrace and include alternative experiential interventions such as music-based interventions in the treatment approaches recommended in the National Protocol for Treatment of SUDs.

5.4.1 Recommendations for Further Research

The following areas of interest were identified for further research:

1. In a quasi-experimental design as used in this study, one may not completely control for extraneous effects. Hence there is need for a randomized control trial on the effectiveness of music-based intervention on treatment motivation among clients in substance use disorder treatment centres in Kenya.
2. A similar study on effectiveness of music-based intervention on treatment motivation among clients with substance use disorder but have not yet entered into treatment as this study focused on the clients already in treatment.
3. In cognizance of the fact that maturation and attrition are threats of internal validity, there is need for a similar study on effectiveness of music-based intervention on treatment motivation (TM) using a longitudinal approach to assess whether TM is maintained over a long period considering the dynamic nature of motivation.
4. The current study did not consider the gender differentials on the effect of MBI on treatment motivation as it was not within its scope. However, it is possible that the effects of MBI could have been different among male and female participants as females are more emotive than men considering that music influences emotions. This may work as an extraneous variable but was statistically controlled for through ANCOVA. Therefore, there is need for a study that considers whether there could be gender differences in TM, and whether the effectiveness of MBI on TM on clients with SUD could be different depending on gender.

5. Comorbidities among clients may influence their TM. The researcher controlled for the pre-test and thus removed the possible effects of differences in TM between clients with SUD only and those with SUD and other conditions since it was not within the scope of the current study. Thus, there may be need for a study to find out whether there could be significant differences in the effectiveness of MBI on treatment motivation among clients with SUD only and the ones with SUD and other co-morbid conditions.
6. A study on effectiveness of music-based interventions on other conditions besides SUD such as depression and anxiety disorders in Kenya.

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APPENDIX I**INTRODUCTION LETTER AND CONSENT FORM FOR THE CLIENTS**

My name is Antony Chege. I am a PhD student at Kenyatta University. I am conducting a study on *Effectiveness of music-based intervention on treatment motivation among clients in selected substance use disorder treatment centres in Kenya*. The information will only be used for the above study.

Procedures to be followed

Participation in this study will require you to answer a questionnaire that will be provided. The information will only be used for the intended research purposes and will bear no identifying information. You have the right to refuse participation in this study. Please remember the participation in the study is voluntary. You may ask questions related to the study at any time.

You may refuse to respond to any questions and may stop responding at any time. You may also stop being in the study at any time without any consequences.

Discomforts and Risks

The study involves no known risk to you and contains no deception. However, if any of the questions make you uncomfortable, you may refuse to answer these questions if so you choose.

Benefits

Participation in this study is voluntary and if you choose to participate, you will help us learn the effectiveness of music therapy in enhancing treatment motivation and in the case of any counseling needs, the services will be offered.

Rewards

There will be no rewards that will be provided to the participants of this study.

Confidentiality

Privacy and confidentiality will be ensured. You are not required to write your names on the questionnaire to ensure anonymity. The questionnaires will be kept in a private office in order to ensure privacy.

Contact information

If you have any questions you may contact Dr. Beatrice Kathungu on 0727893955, Dr. Muchiri Karega or the Kenyatta University Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke or ercku2008@gmail.com.

Investigator's statement

I, the undersigned, have explained to the volunteer in a language that he/she understands, the procedures to be followed in the study and the risks and benefits involved.

Name of the investigator

Investigator's signature..... Date.....

APPENDIX II

QUESTIONNAIRE FOR PARTICIPANTS

Section A: Demographic information

Tick (✓) or answer what applies to you

1. Indicate your age.....
2. Gender: Male..... Female.....
3. Position in the family.....
4. How many siblings do you have?
5. Level of education: Primary Secondary University (Degree/Dip)
6. What do you do for a living; Casual laborer Salaried-Employment
Self-employed Student Unemployed Student-Employed
7. How long have you been in this rehabilitation centre?.....
8. Is this your first admission? Yes No
9. How would you describe your admission? Voluntary Involuntary
10. If no, how many times have you been admitted to a rehabilitation facility?.....

APPENDIX III**TCU TREATMENT MOTIVATION SCALE**

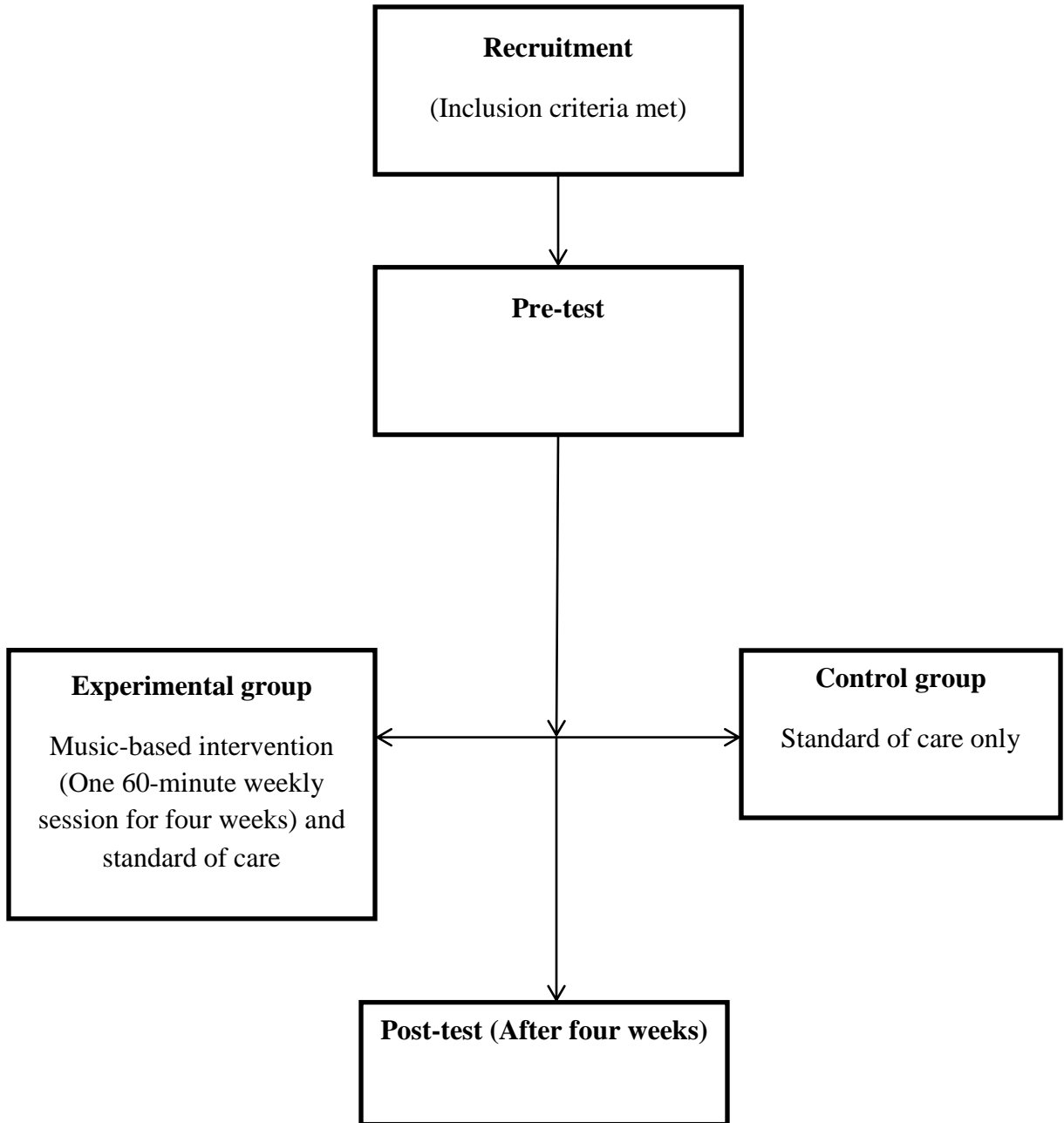
Please respond to each of the statements below by ticking in the box to indicate how much you AGREE or DISAGREE with each one. Mark only one choice for each statement. There are no wrong or right answers, so do not spend much of your time on any one item. Do not omit any item.

| | Disagree strongly | Disagree | Uncertain | Agree | Agree strongly |
|--|------------------------------|-----------------|------------------|--------------|---------------------------|
| 1. Your drug use is a problem for you. | | | | | |
| 2. You need help in dealing with your drug use. | | | | | |
| 3. You have too many outside responsibilities now to be in this treatment program. | | | | | |
| 4. Your drug use is more trouble than it's worth. | | | | | |
| 5. Your drug use is causing problems with the law. | | | | | |
| 6. This treatment programme seems too demanding for you. | | | | | |
| 7. Your drug use is causing problems in thinking or doing your work. | | | | | |
| 8. It is urgent that you find help immediately for your drug use. | | | | | |
| 9. Your drug use is causing problems with your family or friends. | | | | | |
| 10. This treatment may be your last chance to solve your drug problems. | | | | | |
| 11. You are tired of the problems caused by drugs. | | | | | |
| 12. This kind of treatment programme will not be very helpful to you. | | | | | |
| 13. Your drug use is causing problems in finding or keeping a job. | | | | | |
| 14. You plan to stay in this treatment programme for a while. | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| 15. You will give up your friends and hangouts to solve your drug problems. | | | | | |
| 16. You can quit using drugs without any help. | | | | | |
| 17. Your drug use is causing problems with your health. | | | | | |
| 18. You are in this treatment programme because someone else made you come. | | | | | |
| 19. Your life has gone out of control. | | | | | |
| 20. Your drug use is making your life become worse and worse. | | | | | |
| 21. This treatment programme can really help you. | | | | | |
| 22. You want to be in a drug treatment programme. | | | | | |
| 23. Your drug use is going to cause your death if you do not quit soon. | | | | | |
| 24. You want to get your life straightened out. | | | | | |

APPENDIX IV

NON-EQUIVALENT GROUPS PRE-TEST/POST-TEST DESIGN



APPENDIX V

TREATMENT PROTOCOL FOR EACH SESSION

| Session 1 | Session 2 | Session 3 | Session 4 |
|---|--|--|--|
| <p>Theme: Consciousness raising with regards to drugs</p> <p>Step 1 Opening phase (<i>Which involves participants answering questions about how they are doing at the moment. They are also allowed to pick an instrument that they would like to play (if they want to) and the song lyrics are distributed (15 minutes).</i>)</p> | <p>Theme: Self re-evaluation and discrepancies in life (isolation)</p> <p>Step 1 Opening phase (<i>Which involves participants answering questions about how they are doing at the moment. They are also allowed to pick an instrument that they would like to play (if they want to) and the song lyrics are distributed (15 minutes).</i>)</p> | <p>Theme: Decisional balance</p> <p>Step 1 Opening phase (<i>Which involves participants answering questions about how they are doing at the moment. They are also allowed to pick an instrument that they would like to play (if they want to) and the song lyrics are distributed (15 minutes).</i>)</p> | <p>Theme: Supporting self-efficacy</p> <p>Step 1 Opening phase (<i>Which involves participants answering questions about how they are doing at the moment. They are also allowed to pick an instrument that they would like to play (if they want to) and the song lyrics are distributed (15 minutes).</i>)</p> |
| <p>Step 2 Practice phase (five minutes)</p> | <p>Step 2 Practice phase (five minutes) (<i>It</i></p> | <p>Step 2 Practice phase</p> | <p>Step 2 Practice phase (five minutes) (<i>It</i></p> |

| | | | |
|---|--|--|--|
| <p><i>(It involved the researcher practicing a simple rhythm for the song of the day with participants playing the djembe drum and the tambourine (five minutes).</i></p> <p>Step 3 Presentation of a pre-selected song titled <i>The more I drink</i> live performance by the researcher-therapist <i>(The participants will be informed that they are free to sing along and/or play any instrument available as the presentation goes on (five minutes).</i></p> <p>Step 4 Analysis and discussion of</p> | <p><i>involved the researcher practicing a simple rhythm for the song of the day with participants playing the djembe drum and the tambourine (five minutes).</i></p> <p>Step 3 Presentation of a pre-selected song titled <i>MacMuga</i> live performance by the researcher-therapist <i>(The participants will be informed that they are free to sing along and/or play any instrument available as the presentation goes on (five minutes).</i></p> <p>Step 4 Analysis and discussion of the lyrics by the</p> | <p>(five minutes) <i>(It involved the researcher practicing a simple rhythm for the song of the day with participants playing the djembe drum and the tambourine (five minutes).</i></p> <p>Step 3 Presentation of a pre-selected song titled <i>Desperado</i> live performance by the researcher-therapist <i>(The participants will be informed that they are free to sing along and/or play any instrument available as the presentation goes on (five minutes).</i></p> <p>Step 4 Analysis and discussion of the</p> | <p><i>involved the researcher practicing a simple rhythm for the song of the day with participants playing the djembe drum and the tambourine (five minutes).</i></p> <p>Step 3 Presentation of a pre-selected song titled “Roar” live performance by the researcher-therapist <i>(The participants will be informed that they are free to sing along and/or play any instrument available as the presentation goes on (five minutes).</i></p> <p>Step 4 Analysis and discussion of the lyrics by the</p> |
|---|--|--|--|

| | | | |
|--|--|--|--|
| <p>the lyrics by the participants (which entails analysis of the lyrics based on the lyric analysis and discussion guide (30 minutes).</p> <p>Step 5 Closing phase (which involves a summary of what happened in the session (10 minutes).</p> | <p>participants (which entails analysis of the lyrics based on the lyric analysis and discussion guide (30 minutes).</p> <p>Step 5 Closing phase (which involves a summary of what happened in the session (10 minutes).</p> | <p>lyrics by the participants (which entails analysis of the lyrics based on the lyric analysis and discussion guide (30 minutes).</p> <p>Step 5 Closing phase (which involves a summary of what happened in the session (10 minutes).</p> | <p>participants (which entails analysis of the lyrics based on the lyric analysis and discussion guide (30 minutes).</p> <p>Step 5 Closing phase (which involves a summary of what happened in the session (10 minutes).</p> |
|--|--|--|--|

APPENDIX VI

LYRIC DISCUSSION, ANALYSIS AND SUMMARY GUIDE

The lyrics analysis and discussion will be centred on the following areas:

1. Emotions (Immediate feelings elicited by the song and the lyrics in relation to their present struggle of drugs).
2. Cognition (Thoughts elicited by the lyrics of the song in relation to their current situation).
3. Behaviour (Relating behaviour in the lyrics to their present struggle).

The summary of the session will involve:

1. A summary of the session activities.
2. A summary of the lyric analysis and discussion on emotions, cognition and behaviour.

APPENDIX VII**QUESTIONS TO GUIDE THE LYRIC ANALYSIS PROCESS**

Introduction of the session: “Today we are talking about life in addiction. Your life in addiction came with challenges, in terms of your behaviour 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 behaviour, 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?

APPENDIX VIII**THEMATIC GUIDE OF THE PRE-SELECTION OF SONGS**

- I. *The more I drink* by Blake Shelton has the following themes: addiction, unruly behaviour after drinking and sobriety. These themes rhyme with the theme of consciousness raising posited in the transtheoretical model of change.
- II. *Mac Muga* by Ali Kiba has the following themes: assessment of behaviour, pride and arrogance, wastefulness, regret, hopelessness and helplessness. These themes will be helpful in self-evaluation and in gauging life's discrepancies.
- III. *Desparado* by Eagles has following themes: desperation, choice, loneliness and authentic discussion of escapism through pleasure. The song's concepts relate well with decisional balance posited in the transtheoretical model of change.
- IV. *Roar* by Katty Perry is characterized by themes such as courage, determination and self-belief. These themes are in line with theme of self-efficacy as proposed in the Transtheoretical Model of Change. Self-efficacy encourages self-empowerment and self-belief, which is the song's main purpose.

APPENDIX IX**SUBSTANCE USE DISORDER INPATIENT TREATMENT CENTRES IN
KENYA****SAPTA**

Nairobi County
Physical Address – Githurai 44
Tel. 0724891222, 0723992332
P.O. Box 21761-00502

Nairobi Place Addiction Treatment and Specialized Medical Centre

P.O. Box 139-00502, Karen
Tel: 020267839, 0735-550000, 0733-440000
Fax: 0203884352
Email: info@nairobi-place.org, admin@nairobi-place.org
Website: www.nairobiplace.org

Asumbi Treatment Centre

Nairobi County
Physical Location: Karen Shopping Centre-Along Karen-Bomas Road
Contacts: 0202664540/0721287822/0721287822
Email: info@asumbutcentre.org

Mariakani Villa

County: Nairobi
Sub County: Lang'ata
Physical Location: South B off Muhoho Road
Contacts: 0206006172
Email: counseling@mariakanivilla.com or enquiries@mariakanivilla.com

Chiromo Lane Medical Centre

County- Nairobi
P.O. Box 1501 – 00606
Tel: 0729359501, 0786265143
Email: info@clmc.co.ke

Eden House - Parklands

Nairobi County
P.O. Box: 41187-00100 Nairobi
Tel: 0722867693, 0726552476, 0722901804
Email: justin.farrar@yahoo.com , bonifacendirangu@yahoo.com , anthonyneru009@yahoo.com

Precision Counselling and Rehabilitation Centre


County-Nairobi


P.O. Box 48418-00200

Tel: 0702378314, 0770476185

Email: info@precisioncounselling.org


APPENDIX X
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION LICENSE


REPUBLIC OF KENYA


NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

RefNo: **169920** Date of Issue: **16/September/2019**


RESEARCH LICENSE




This is to Certify that Mr. Antony Chege of Kenyatta University, has been licensed to conduct research in Baringo, Bomet, Bungoma, Busia, Elgeyo-Marakwet, Embu, Garissa, Homabay, Isiolo, Kajiado, Kakamega, Kericho, Kiambu, Kilifi, Kirinyaga, Kisii, Kisumu, Kitui, Kwale, Lailipia, Lamu, Machakos, Makeni, Mandera, Marsabit, Meru, Migori, Mombasa, Muranga, Nairobi, Nakuru, Nandi, Narok, Nyamira, Nyandarua on the topic: Effect of Music-Based Intervention on Treatment Motivation Among Clients in Selected Substance Use Disorder Treatment Centers in Kenya for the period ending : 16/September/2020.

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APPENDIX XI

ETHICS REVIEW COMMITTEE APPROVAL



Kenyatta University
P.O Box 43844-00100
Nairobi-Kenya

REF: KU/ERC/APPROVAL/VOL1/15

Date: 17th September, 2019

Antony Chege
P.o Box 43844-00100
Nairobi

Dear Mr. Chege,

RE: EFFECT OF MUSIC-BASED INTERVENTION ON TREATMENT MOTIVATION AMONG CLIENTS IN SELECTED SUBSTANCE USE DISORDER TREATMENT CENTERS IN KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/1083/I1133**. The approval period is ***10th September, 2019-10th September, 2020***.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
 - ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***.
 - iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
 - iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
 - v. Clearance for export of biological specimens must be obtained from relevant institutions.
 - vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
-

- vii. Submission of an executive summary report within 90 days upon completion of the study to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE.***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely



Prof. Judith Kimiywe



CHAIRPERSON- KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE.
