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Influence of Methadone Substitution Therapy on Criminal Behaviour, Drug Abuse, and HIV Risk Behaviour among Drug Users in Kilifi County: A Case of the Omari Project

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Abstract: The main purpose of this study was to investigate the influence of Methadone Substitution Therapy on criminal behaviour, drug abuse, and HIV risk behaviour among drug users in Kilifi County by The Omari Project Organization. To attain this purpose, the study determined the influence of Methadone Substitution Therapy on the criminal behaviour of drug users, the influence of Methadone Substitution Therapy on drug abuse among clients on methadone therapy, and the influence of the therapy on HIV risk behaviours among clients on the programme. The study used a descriptive survey design, whereby 48 clients and 7 programme staff were interviewed. Data was collected using questionnaires and analyzed using Chi-square test and SPSS. The findings of the study indicated a significant relationship between methadone therapy and crime among clients on the Methadone Substitution Therapy. The study also revealed a connection between methadone therapy and drug abuse among clients on methadone programme, as well as a significant relationship between HIV risk behaviours among clients on methadone programme.

1.0 Introduction

1.1 Background

According to the United Nations Office on Drugs and Crime (UNODC), opioid use, including heroin and prescription painkillers, is estimated at between 28.6 and 38 million people globally (UNODC, 2014). Opioids are opiates that occur naturally or semi-synthetic and synthetic drugs that can lead to dependence. The use of illicit drugs can have considerable negative effects on the health of the individual. For instance, using illicit drugs can cause death through drug overdose, and can lead to disabilities or poor quality of life. In addition, illicit drug use can affect vital organs such as the liver, promote HIV infections, and increase the likelihood of developing hepatitis B and C through sharing contaminated injecting equipment such as syringes and needles.

The United Nations Office on Drugs and Crime estimates that there were 183,000 drug-related deaths in the world in 2012, corresponding to a mortality rate of 40.0% deaths per million persons aged 15-64 years. This translates to 83% of the population aged between 15-64 years in the world (UNODC, 2014). From the report, opioid dependence was the leading contributor to the prevalence of diseases, causing premature deaths and disability among majority of the drug users. In another study, Lowenstein (2001) investigated how criminality relates to substance abuse. According to the study, not all crimes occur as a result of drug use or drug dependence, although majority of those who commit crimes do so because of drugs (Lowenstein, 2001). This is because relying on drugs affects rational thinking, and drug dependence prompts drug users to engage in crime as a way of satisfying the habit.

According to WHO (2008), mitigating the effects of opioids requires the use of methadone drug as a substitution therapy for people who are addicted to opium such as heroin. The recommendation was supported by UNODC and other renowned agencies, which claimed that using substitution therapy to manage opioid dependence led to reduced use of illicit drugs, decline in crime, reduced overdose-related deaths, and minimized HIV-risk behaviour.

The importance of methadone drug as a substitution therapy has been investigated by several scholars. For instance, Mattick, Breen, Kimber, and Davoli (2009) examined maintenance treatment effects in comparison with other treatments not involving the therapy of opioids replacement, which included placebo medication, detoxification, drug-free rehabilitation, and wait-list control for opioids dependence. The study revealed that methadone was effective in treating heroin dependence. This is because the maintenance therapy resulted in reduced heroin use and higher patient retention better than other treatments that did not use opioid replacement therapy (Mattick, Breen, Kimber, & Davoli, 2009). However, the study did not show statistical significance superior effects on criminal activity or mortality. In another study, Amato, Davoli, Perucci, Ferri, Faggiano, and Mattick (2005) compared the effectiveness of different maintenance therapies. From the study, they reported that methadone maintenance therapy is more effective compared to methadone detoxification therapy, buprenorphine maintenance therapy, heroin plus methadone, among others (Amato, et al., 2005).

The use of methadone in the management of drug use has been tried in different countries. According to Yin, et al. (2010), the methadone maintenance treatment program was started in China in 2004, but has grown into a national project covering over 600 clinics in 27 provinces. The treatment program has since led to reduced use of heroin and minimized criminal activities and risky injection practices among drug users. In another research, Xiao, Wu, Luo, and Wei (2010) studied the effects of methadone therapy clinics on patient's quality of life during the first 3 months of treatment. According to the researchers, methadone therapy assists in improving the outpatients' quality of life.

Colasante, Gori, Pitino, Lovaste, Molteni, and Molinaro (2012) studied two groups of clients on methadone substitution therapy so as to determine the success of the therapy. The study reported that social therapy and lack of previous admissions into rehabilitation centers increased the chances of successful treatment. Other factors that led to successful treatment included level of education, start of treatment after age of 35 years, and lack of previous imprisonment record. Similarly, Marsch (1998) conducted a study on the effectiveness of methadone maintenance interventions on the reduction of illegal drug use, criminal behaviour, and HIV risk practices. According to the study, methadone maintenance therapy leads to reduced use of illicit drugs, criminal behaviour, and HIV risk practices.

In Tanzania, Bruce, et al. (2014) investigated the lessons learnt from integrating HIV and Tuberculosis treatment into methadone assisted treatment. The study revealed that health care systems should be integrated to achieve better health outcomes for drug users, including reduced rates of HIV and TB incidence. According to NACADA (2012), heroin prevalence in Kenya among the active population increased from 0.4% to 0.7% between 2007 and 2012. NACADA also reported that drug and substance abuse pose major social problems in Kenya. Kenya is currently implementing the methadone substitution therapy, and one organization which implements it is The Omari Project. The Omari Project is a non-governmental organization (NGO) established in 1995 with assistance from The Bristol Drugs Project and the British Council. The Omari Project reports to UNODC, and is meant to offer education and social services to drug addicts, their families, and communities living along the Kenyan coastline. They implement methadone substitution therapy, needle exchange programme to injecting drug users; they have a rehabilitation centre for residential, outpatient and outreach services.

1.2 Statement of the Problem

Heroin has been readily available in Kenyan Coastal towns for a long time. Heroin use has negative consequences ranging from health, economic, and social problems. Notably, heroin use has led to increased HIV and AIDS transmission from shared needles and unsafe sex, engagement in crime to support the habit, imprisonment, and death, among other negative impacts. According to NACADA (2012), the availability and use of heroin in Kenya has increased. The report indicated that drug abuse in Kenya is mainly caused by easy availability of drugs, weak awareness programmes, funding constraints to address the problem, poverty, peer pressure, idleness, unemployment, and broken families. To address the heroin problem, Kenya has adopted the methadone substitution therapy, and one of the organizations implementing it is The Omari Project. This study seeks to investigate factors that led to the successful implementation of this project at the Kenyan coastal region of Kilifi County.

1.3 Purpose of the Study

The purpose of the study was to investigate the influence of methadone substitution therapy on criminal behaviour, drug abuse, and HIV risk behaviour among drug users in Kilifi County by The Omari Project Organization.

1.4 Objectives of the Study

i. To examine the extent to which methadone substitution therapy influences the criminal behaviour of clients on methadone substitution therapy.
ii. To determine the extent to which methadone substitution therapy influences drug abuse among clients on methadone therapy.
iii. To examine the extent to which methadone substitution therapy influences HIV risk behaviours among clients on methadone therapy.

1.5 Research Questions

i. How does methadone substitution therapy influence criminal behaviour among clients on methadone therapy?
ii. How does methadone substitution therapy influence consumption and abuse of drugs among clients on methadone therapy?

iii. How does methadone substitution therapy influence HIV risk behaviours among clients on methadone therapy?

1.6 Hypothesis of the Study

i. **H_{1a}**: Methadone substitution therapy reduces the tendency to engage in crime among clients undergoing the therapy
ii. **H_{1b}**: Methadone substitution therapy reduces the consumption of illicit drugs among clients undergoing the therapy
iii. **H_{1c}**: Methadone substitution therapy reduces HIV risk behaviours among clients undergoing the therapy.

1.7 Significance of the Study

This study is important in that the findings can lead to improvement of the methadone substitution therapy programme. Secondly, the findings can lead to higher uptake of methadone substitution therapy among drug users and drug rehabilitation institution. Thirdly, information from the study can lead to a drug free society and better quality of life for those on treatment.

1.8 Delimitation of the Study

In an ideal situation, this study ought to have been done in the whole country where methadone substitution therapy programme is implemented so as to have a bigger picture of the programme's influence on criminal behaviour, drug abuse, and HIV risk behaviour. However, due to limited resources, the study was only conducted in Kilifi County and the findings would be applied to places with similar conditions.

1.9 Limitation of the Study

The researcher appreciates the fact that there are many influences of Methadone Substitution Therapy. Some of such factors affect the implementation process while others are outcome based. The researcher chooses those that are outcome based because of cost and time implications. However, to get the full picture, the researcher ought to have considered both the process-based and the outcome-based determinants of success. Due to limited resources, the researcher had to choose the outcome based determinants.

1.10 Assumptions for the Study

The researcher assumes that the target respondents, including drug users, would cooperate and provide factual information. Another assumption is that the target stakeholders, such as policymakers, would use the findings to make plans and implement evidence-based methadone substitution therapy programmes.

1.11 Definition of Significant Terms

Addiction

According to the American Psychological Association (APA), addiction is a condition in which the body demands drugs to avoid physical and psychological symptoms of withdrawal. Addiction begins with dependence, after which the body develops tolerance, prompting the individual to consume more and more of the drug (APA, 2016).

Harm reduction

The UNODC (2008) defines harm reduction as the process of preventing the negative effects of using illicit drugs, sometimes without reducing the consumption of the drugs.

Opioids

According to WHO (2013), opioids are a group of compounds that activate the brain's opioid receptors. Opioids can be chemically synthesized or derived from the opium poppy plant. Among the commonly used opioids include heroine, morphine, and methadone.

Substitution therapy

WHO (2011) defines substitution therapy as the supply of replacement drugs to illicit drug users in a supervised clinical setting.

1.12 Organization of the Study

This study is organized into different chapters. Chapter One covers the introduction to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, delimitation of the study, limitation of the study, assumptions of the study, definition of significant terms and organization of the study.

Chapter Two is the Literature Review. This section begin with introduction, then criminal behaviour among drug users on methadone substitution therapy, methadone substitution therapy uptake among drug users, gainful employment among drug users on methadone substitution therapy conceptual framework and lastly the summary of the literature review.

Chapter Three is the Research Methodology. This section begins with an introduction, then the research design, target population, sampling techniques and size, research instruments, validity of the instruments, reliability of the instruments, data collection procedure and data analysis.

Chapter Four is data presentation, analysis and interpretation of the findings of the study, while Chapter Five presents the summary of the findings, discussions of the findings, conclusion, recommendations and suggestions for further research.

2.0 Literature Review

2.1 Introduction

This chapter reviews contributions by other scholars in the field of methadone substitution therapy among clients who abuse heroin. It provides basis for the influence of methadone substitution therapy on criminal behaviour, drug abuse, and HIV risk behaviour among drug users in Kilifi County by The Omari Project. The study has identified three independent variables which include; the influence of methadone substitution therapy on criminal behaviour of drug users, influence of Methadone Substitution Therapy on the consumption of Drug Abuse among clients on methadone therapy and influence of methadone substitution therapy on HIV risk behaviours among clients on methadone therapy.

2.2 The Concept of Methadone Substitution Therapy

According to WHO (2008), Methadone Substitution Therapy is the medical administration of a psychoactive stuff in a supervised way which equates to the one that produces dependence to an individual. The substance diminishes the effects of any extra opioids used while ensuring a stable and non-intoxicating effect. UNODC, WHO, and UNAIDS endorsed this treatment in the year 2004.

Methadone is in liquid form and is administered to clients daily on a dose determined by the health worker at the methadone clinic. The clients are expected to use methadone for a period of two years. The dose keeps on reducing, and the end of two years, the client would be free from methadone. In Kenya currently, there are only two centers where Methadone therapy is implemented, namely in Malindi at the Level 4 Hospital and linked to the community by The Omari project Organization, and in Nairobi at Mathare Hospital and linked to the community by an organization called Support for Addictions Prevention and Treatment in Africa (SAPTA). This programme has been implemented in Kenya since January 2015.

2.3 The Influence of Methadone Substitution Therapy on the Criminal Behaviour of Drug Users

There are many studies that have found evidence of effectiveness of methadone treatment in reducing criminal activity of opioid misusers. For instance, Powers and Anglin (1993) conducted a study on cumulative versus stabilizing effects of methadone maintenance. The study found a pattern of behaviour change on crime involvement and employment, which indicated stabilizing effects but no indication of cumulative effects were observed (Powers & Anglin, 1993). In a study on narcotics use and crime, Anglin and Speckart (1988) found out that narcotics treatment reduce crime levels. This observation was supported by Ward, Mattick, and Hall (1994), who revealed that patients on methadone treatment reported a reduction of 80% in the number of crimes after their condition had stabilized on methadone.

Similarly, Marsch (1998) investigated the effectiveness of methadone maintenance interventions on the reduction of illicit opiate use, criminality, and HIV risk behaviour. The study reported that methadone maintenance therapy was effective in reducing illicit drug use, as well as minimizing the chances of engaging in HIV risk behaviours or crime among drug users. On their part, Parmenter, et al. (2013) explored the use of methadone maintenance treatment in relation to new national guidelines in a primary care setting. Accordingly, methadone maintenance therapy was reported to reduce the frequency of heroin use, lower convictions for all crime, and minimize HIV risk-taking behaviour among the participants.

In another study, Sun, et al. (2015) evaluated criminal behaviour, social functioning changes and family relations among clients on methadone. From the findings, the methadone program was found to result in significant reduction of drug-related criminal activity, improved social wellbeing, and better employment rates for those in the maintenance programme. The study concluded that methadone maintenance treatment is effective in enabling drug users to resume societal and family functions. Similarly, Tran, et al. (2012) conducted an evaluation of the methadone substitution therapy in Vietnam. Their study revealed that incidences of HIV were low among patients on methadone, and the patients' quality of life and social stability were significantly improved. Chou, Shih, Tsai, Li, Xu, and Lee (2013) investigated the quality of life of people enrolled on

methadone therapy in Taiwan. The study revealed that methadone maintenance treatment leads to better quality of life among heroin users.

On their part, Sheerin, Green, Sellman, Adamson, and Deering (2004) studied the changes in crime, drug use, societal costs, and imprisonment among a sample of Maori and non-Maori injecting drug users on a methadone therapy programme in New Zealand. The study reported significant reductions in the occurrence of crime, whereby 60% of the participants reported engaging in criminal activity on a daily basis before methadone therapy, but only 1% of the participants reported engaging in crime after the program (Sheerin, Green, Sellman, Adamson, & Deering, 2004). Significant reductions in drug-abuse expenditure and income from illegal activities were reported, and the figures were similar for both Maori and non- Maori participants. Further, Liu, et al. (2008) investigated the impact of methadone dosage on client retention in China. According to the study findings, higher retention rates were reported among patients expecting long-term treatment compared to those expecting short-term treatment.

2.4 The Influence of Methadone Substitution Therapy on the Consumption and Abuse of Drugs among Clients on Methadone Therapy

Studies have shown that methadone substitution therapy programme is effective in reducing illicit drug use. Sullivan, Metzger, Fudala, and Fiellin (2005) studied the role of expanding access to opioid therapies for injecting drug users. The study found out that methadone treatment demonstrated a decrease in opioid use, opioid injection, needle –sharing, injected HIV risk behaviour and cost. On their part, Johnson, et al. (2000) compared the use of levomethadyl acetate and methadone in the control of drug dependence. According to the study, different doses of the interventions led to substantial reduction in the use of illicit drugs. Also, Sees, et al. (2000) studied the outcomes of patients with drug dependence after being treated with methadone or an alternative treatment. The study confirmed that methadone treatment is effective in reducing the use of heroin and minimizing behaviour that leads to HIV infections.

Further, Michels, Stover, and Gerlach (2007) investigated substitution treatment for opioid addicts in German. The study revealed a reduction in illegal drugs use. Schwartz, Kelly, O'Grady, Gandhi, and Jaffe (2011) investigated on interim methadone treatment and compared it with methadone treatment in four months. The study found out that the interim methadone had less self-reported days of engagement into criminal behaviours, reduced illegal income and less cash spent on drugs compared to the standard methadone therapy. This study concluded that interim methadone need to be less restricted and more widely used especially where standard methadone therapy is unavailable. In another study, Sullivan, Wu, Cao, Liu, and Detels (2014) examined a nation-wide data from China to assess client outcomes after six months of methadone treatment. The study revealed that Chinese methadone therapy have a positive influence on the drug using behaviours of clients remaining in treatment for at least six months, with overall reduced harmful drug use and more socially desirable behaviours. Yang, et al. (2013) investigated the predictors of treatment retention in methadone maintenance treatment clinics in Pearl River Delta in China. According to the study, predictors for methadone therapy retention include maintained relations with former drug users, record of past history, age, addiction severity, income, perception about the cost of treatment, living in rural areas, as well as sharing needles and readmission.

In their study, Li, Lin, Wan, Zhang, and Lai (2012) investigated the use of heroin in China in relation to the demographic characteristics of the users as well as the experience of treatment and social network of the individuals. According to the study, the use of heroin was more prevalent among individuals whose friends used the drug. In addition, longer than 2 years of treatment led to increased concurrent use of heroin. A similar study by Raffa, et al. (2007) explored the impact of continued use of illegal drugs on adherence to methadone among those receiving treatment for HIV. From the study, it was clear that use of illicit drugs reduced adherence to methadone.

Pang, et al. (2007) evaluated the effectiveness of the first phase of eight methadone maintenance treatment clinics in China. The study found out that the first phase of methadone therapy led to reduced use of drugs, decreased drug-related criminal activity, and lower rates of HIV infections among users of heroin that were part of the methadone therapy programme. In their study, Liu, et al. (2009) investigated the continued use of heroin among clients on the methadone maintenance treatment. According to the study findings, the continued use of heroin among clients on the methadone program increased the methadone dosage, extended treatment period, but was likely to decrease continued heroin use among the participants (Liu, et al., 2009).

On their part, Kamal, Flavin, Campbell, Behan, Fagan, and Smyth (2007) measured the rates of continued abuse of heroin among the population of patients receiving methadone treatment. The study reported that shorter treatment durations led to reduced methadone dosage. Also, the abuse of cocaine had a notable influence on drug abstinence (Kamal, et al., 2007).

2.5 The Influence of Methadone Substitution Therapy on HIV Risk Behaviours among Clients on Methadone Therapy

Studies have shown that methadone substitution therapy is effective in reducing HIV risk behaviours such as sharing of needles. MacArthur, et al. (2012) quantified the impact of drug substitution therapies on HIV infection among injecting drug users. The study showed that drug substitution treatment leads to reduced risk of HIV infection. In another study, Stark, Muller, Bienzle, and Guggenmoos-Holzmann (1996) sought to establish the effectiveness of methadone maintenance treatment in the reduction of HIV risk-taking behaviour, including the sharing of injection needles and syringes among injecting drug users. The study showed reduced frequency of injection and sharing of needles or syringes among injecting drug users. Further, Gowing, Farrell, Bornemann, Sullivan, and Ali (2006) assessed the effects of oral substitution treatment for opioid dependence injecting drug users on HIV risk behaviours and infections. The study revealed that methadone therapy is effective in reducing HIV transmission risk and sharing of equipment among injecting drug users. Methadone substitution therapy also reduces HIV risk behaviour such as multiple sex partners.

Barry, Weinstock, and Petry (2008) identified differences in the ethnic composition and behavioural practices of female cocaine users being treated with methadone maintenance for drug dependence. According to the study, White women were more likely to practice HIV-risk behaviours compared to African Americans. The study also reported that managing the use of cocaine is effective in reducing HIV-risk behaviours. Also, Tran, et al. (2012) studied the changes in use of drugs and established predictors of continued use of drugs during methadone maintenance treatment among HIV drug users. The study found out that methadone therapy can reduce drug use.

In another study, Sullivan, et al. (2008) investigated the relationship between primary care-based buprenorphine/naloxone and HIV risk behaviour. According to the findings, primary care-based buprenorphine/naloxone treatment can lead to a decline in HIV risk. Hartgers, van den Hoek, Krijnen, and Coutinho (1992) investigated the HIV prevalence and risk behaviour among injecting drug users receiving methadone treatment. The study reported the likelihood of long-term participants being infected with HIV.

Further, Darke, Swift, Hall, and Ross (1994) investigated methadone therapy clients regarding current and needle risk taking in order to ascertain factors associated with these behaviours. The study revealed that current injecting was associated with being female, having a regular sexual partner who was a current injecting drug user, and higher levels of global psychopathology. Rhoades, Creson, Elk, Schmitz, and Grabowki (1998) studied the importance of the frequency of methadone dosage on reduction of drug use and HIV infection. According to the study, regular doses enhance treatment retention.

2.6 Theory of Reasoned Action

Advanced by Ajzen and Fishbein (2011), the theory of reasoned action states that two aspects determines the intention of an individual to take up and adopt a behaviour that is recommended, this two aspects are an individual's attitude in regard to the behaviour and his or her subjective beliefs. For example an individual's normative beliefs are shaped by the societal standards and norms and if the important people in his or her life approve or disapproves of the specific behaviour. A client who believes that methadone use will yield positive results will have positive attitudes towards the programme. In this study context, this theory is relevant because methadone client's attitudes are influenced highly by their perceptions of what others in their peers do and think. Also, methadone clients may be motivated by the expectations of respected peers.

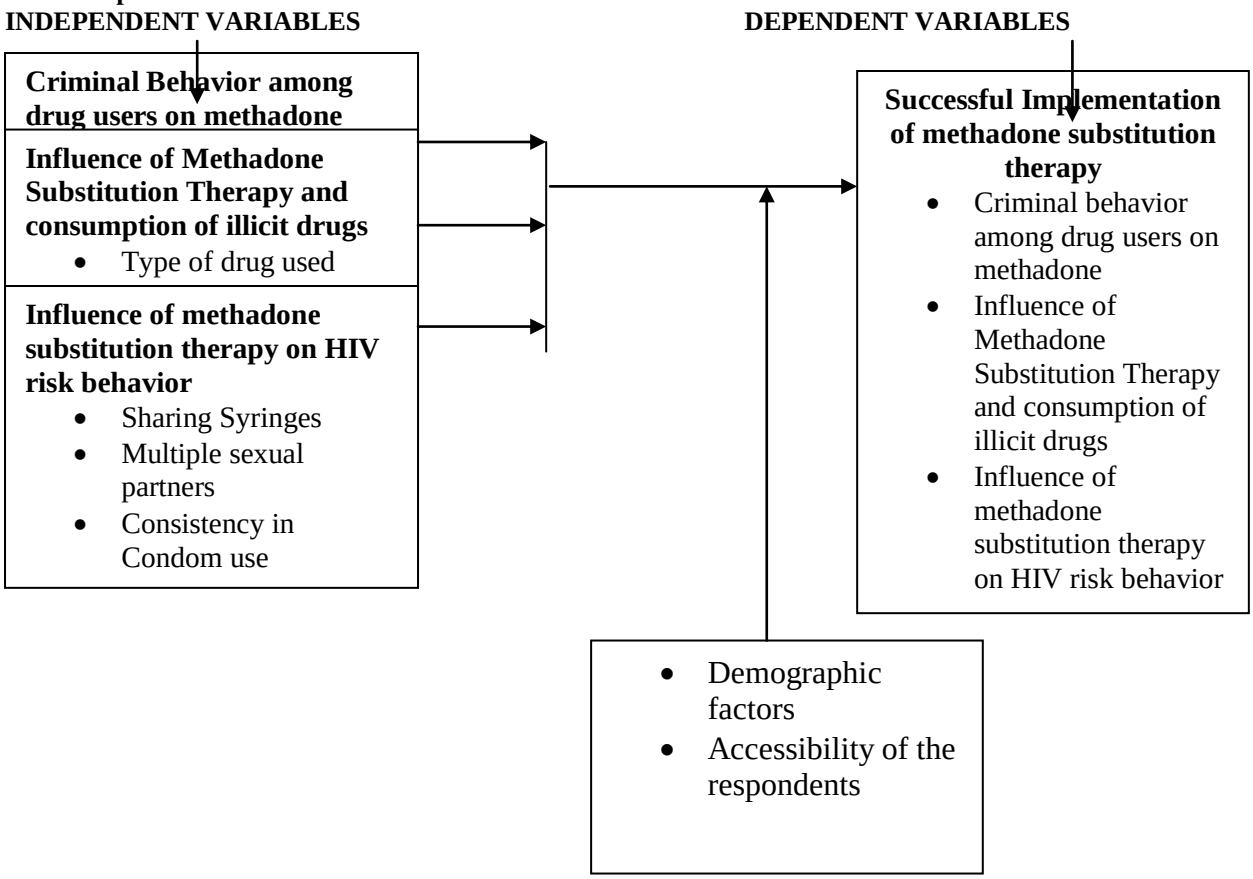
2.7 Theory of IMBR Model: Information, Motivation, Behaviour Skills and Resources

The IMBR model addresses behaviours that are health-related in such a way that these behaviours can be applied to different societies and cultures. This model focuses on the behavioural skills, the information, the motivation and the resources that are useful in targeting risk behaviours. Information answers the "what", motivation the "why", resources the "where", and behavioural skill is about the "how" in targeting risk behaviours. For example if a methadone client becomes aware that proper condoms use may prevent HIV spread , he or she may be motivated to use them and know how to employ them correctly, but he may not be able to purchase or find them. Thus, the concept of resources is important to this model. Rongkavilit et al (2010) conducted a study in Thailand, which applied the resources, motivation, Information and behaviour skills model in adherence medication among Thai youth living with HIV. This study finding considers the expansion of the motivation construct of IMBR model to integrate youth social responsibilities, perceived familial and the necessity of medications adherence for both short and long term wellbeing of an individual, the family, and the society in the Buddhist values context.

In the context of this study, a programme that lacks a comprehensive approach with all the four IMBR concepts lacks components that are essential in ensuring a healthier lifestyles and risk behaviour reduction. For

example, a programme may explain to its clients the importance of contraception use and goes ahead to describe the contraception methods but might exclude proper use demonstration. This would give the participants information in relation to what to do but fail to give information on how to do what the participants ought to do. Some programmes also give participants information about what and how to do specific health behaviours but fail to offer intellectual and emotional reasons to drive them to practice those behaviours. Although resources can be considered part of information, it is important to provide methadone clients with information about where to access appropriate resources or services beyond the scope of the programme. For instance, such resources may include counselling services, HIV services, and care programmes.

2.8 Conceptual Framework



2.9 Summary of Literature Review

Studies have been conducted to determine the factors that are responsible for a successful implementation of methadone substitution therapy around the world. The findings vary considerably. For instance, there are studies that have found a positive and strong relationship between the program's success and varying environmental factors, while others have found no relationship at all, instead citing other factors that could be responsible for the success of methadone programme. However, from all these studies, no study has been done to determine the same in Kilifi County. Therefore, this study would give useful information that would contribute towards stopping drug abuse in the region.

3.0 Research Methodology

3.1 Introduction

This chapter presents the research methodology of the study. The chapter highlights the research design, target population, sample size and sampling procedure, data collection methods, reliability and validity of research tools, operational definition of variables and data analysis and presentation techniques.

3.2 Research Design

A research design refers to the methods and procedures which are applied in order to collect data. The study used a descriptive survey research design. This is because the researcher uses the variables as they appear and did not manipulate them in anyway. According to Shuttleworth (2008) descriptive research design refers to a scientific method that involves observing and describing the behaviour of a subject without influencing it in any way. The study determined influencing factors which include; then criminal behaviour among drug users on methadone substitution therapy, influence of methadone substitution therapy on illicit drug use and the influence of methadone substitution therapy on HIV risk behaviours. The study used both qualitative and quantitative mode of enquiry.

3.3 Target Population

A target population consists of the entire items to which the study result is intended to be generalised. According to Parahoo (1997) a population is the total number of units from which data can be collected while a target population is the total area of concern to the study from where the study results will be generalised. The population size involved in the study comprised of 54 clients enrolled in methadone substitution therapy and 7 programme staff, according to The Omari Project data of March 2015

3.4 Sample Size and Sampling Procedure

In research, a sample is part of the population that has been selected in a systematic manner to be representative of the entire population. A sample enables generalization of the findings to the larger population. According to Burns & Groove, (2001) sampling is a process of selecting a group of people, events or behaviour with which to conduct a study. The study targeted a total of 61 respondents; random sampling was used to select the 9 client respondents and the 3 programme officers were selected using a census method. A sample size of 10-30 % is recommended for descriptive research design according to Mugenda and Mugenda (2003), therefore the 11 respondents being used as a sample size was viable as it formed 20%. Table 3.4 below shows the sampling size.

Table 3.4: Sampling size

Respondents	Target population	Sample size	Sampling procedure
Clients on Methadone Therapy	54	11	Random sampling
Programme Officers	7	7	Census method
TOTAL	**61**	**18**	

3.5 Data Collection Methods

Data collection instruments refer to the tools used for data collection from the respondents on the topic under study. The researcher was granted permission from the University of Nairobi and The Omari Project Organization where the methadone programme is implemented. Data was collected through guided interviews administered to the methadone clients and programme staff. A census survey data collection method was used to collect data. The Questionnaires had both open ended and closed ended questions and where two types, interview guide for clients on methadone and interview guide for programme staff.

3.6 Reliability and Validity of Research Tools

Reliability is defined as the ability of a test to consistently give similar results when measurements of the same individual are calculated repeatedly when exposed to the same conditions Kothari (2004). Validity on the other hand concerns the accuracy and dependability of the inferences based on the calculated scores, this is regardless of whether the score measure what it was meant to measure, or not Mugenda and Mugenda (2003). The instruments were validated by research experts at the University of Nairobi. The test-retest method of reliability was used for the research instrument. Therefore, a pilot test of the instruments was administered prior to the actual research.

3.7 Operational Definition of Variables

Table 3.7: Operational definition of variables

Independent Variables	Indicator	Measure	Data collection method	Scale	Analysis
Criminal Behaviour among drug users on methadone	Type of criminal activity engaged	Existence of criminal activity during the Therapy programme	Interview guide	Nominal	Averages
	Any Arrests during the therapy	Existence of any arrests during the Therapy programme	Interview guide	Nominal	Averages
	Reasons for the arrest	Existence of reasons for engaging in criminal activities	Interview guide	Nominal	Averages
Influence of Methadone Substitution Therapy and consumption of Drug Abuse	Type of drug used during the Therapy	Existence of drug abuse during the Therapy	Interview guide	Nominal	Averages
	Health problem associated with drug abuse during the Therapy programme	Existence of health problem associated with drug abuse	Interview guide	Nominal	Averages
	Type of health problem occurred as a result of drug abuse	Existence of the type of Health problem encountered	Interview guide	Nominal	Averages
Influence of methadone substitution therapy on HIV risk behaviour	Sharing needles during the Therapy	Existence of needle sharing during the Therapy	Interview guide	Nominal	Averages
	Multiple sexual partners during the Therapy	Existence of engagement with multiple partners during the Therapy	Interview guide	Nominal	Averages
	Consistency in Condom use	Existence of consistency use of condoms during the Therapy	Interview guide	Nominal	Averages

3.8 Data Analysis and Presentation Techniques

Data analysis is defined as the process of converting raw data that has been previously obtained into useful information which comes in handy in decision making by those using it. According to Polit and Hungler (1997) data analysis is meant to provide a well organized structure, organize the data collected and educe meaning to it. The purpose of Data analysis is to create responses to questions, hypothesis testing or to refute theories in place.

The data was cleaned and only completed questionnaires were analyzed. All questionnaires which were incomplete were treated as no response. During this study all questionnaires which were given out were obtained and analyzed. Data was analyzed using Chi-square test since the scales used during the study were

nominal and ordinal. The findings were presented using frequency tables and percentages so as to bring out the relationship between the dependent variable and the independent variables.

3.9 Ethical Considerations

The research considered the various ethical considerations required. Permission was sought from the Omari project officials and the Respondents were informed the purpose of data collection and their consent gained before engaging them in the research. The respondent's privacy, anonymity and confidentiality were assured during data collection. The researcher also avoided embarrassing and sensitive way of asking questions in order to make the respondents comfortable.

4.0 Data Presentation Analysis And Interpretation

4.1 Introduction

Data was collected on the influence of methadone substitution therapy on criminal behaviour, drug abuse, and HIV risk behaviour among drug users, focusing on The Omari Project in Kilifi County. The data has been analyzed, interpreted and presented in both text and tabular form. The data has been presented in four sections. The variables include criminal behaviour among drug users on methadone therapy, influence of methadone therapy on consumption of drug abuse, and the influence of methadone therapy on HIV risk behaviour.

4.2 Response Rate

Data collection took four weeks. A total of 48 methadone clients out of 54 clients were interviewed, which represent a response rate of 89%, this rate is acceptable according to Mugenda and Mugenda (2003). The other clients were not available during the period of interviews. 7 members of staff were interviewed, which represent 100% respondent rate. Table 4.1 below elaborates the response rate of the respondents.

Table 4.2: Response rate of the respondents

Respondents	Population	Sample	Response	Response rate
Clients on Methadone Therapy	54	54	48	89%
Programme Officers	7	7	7	100%

4.3 Respondents' Characteristics

The respondents' characteristics were analyzed in order to obtain a clear understanding of who they are. Some of the key characteristics analyzed included gender, age, employment status, marital status, and period in methadone therapy.

4.4 Demographic Characteristic of Clients on Methadone

This study has analyzed the demographic characteristics of clients on methadone separately and the programme staff who are working on the programme separately. This section presents the demographic characteristics of the clients on methadone therapy in Table 4.4

Table 4.4 Demographic characteristics of clients on methadone therapy

Demography	**Respondents**	**Frequency**	**Percentage**
Gender	Male	32	66.67%
	Female	16	33.33%
	Total	**N=48**	**100%**
Age	20 – 30 years	11	22.91%
	30 – 40 years	20	41.67%
	40 – 50 years	14	29.16%
	50 - 60 years	3	6.25%
	Total	**N=48**	**100%**
Where the Client Stays	Maweni	17	35.41%
	Kisumundogo	6	12.5%
	Shella	14	29.16%
	Barani	1	2.08%
	Ngala	3	6.25%
	Muyeye	4	8.33%
	Kwajiwa	1	2.08%
	Mtangani	1	2.08%

	Majengo	1	2.08%
	Total	**N=48**	**100%**
Employment Status	Yes	22	45.83%
	No	26	54.16%
	Total	**N=48**	**100%**
Type of Employment	Not Employed	24	50%
	Fisherman	6	12.5%
	Shoemaker	1	2.08%
	Carpenter	3	6.25%
	Self-employed	6	12.5%
	Garbage Collection	1	2.08%
	Matatu Tout	3	6.25%
	Peer Educator	4	8.33%
	Total	**N=48**	**100%**
Marital Status	Not Married	30	62.5%
	Married	8	16.67%
	Divorced	10	20.83%
	Total	**N=48**	**100%**
Number of Children of the Respondents	No Child	14	29.16%
	1 Child	15	31.25%
	2 Children	14	29.16%
	3 Children	3	6.25%
	4 Children	2	4.16%
	Total	**N=48**	**100%**
Period on Methadone programme	1 month	3	6.25%
	2 months	15	31.25%
	3 months	20	41.67%
	4 months	10	20.83%
	Total	**N=48**	**100%**

Table 4.4 above indicates that the majority of the respondents were male who constituted 66.67% of the respondents. Very few of the respondents were aged between 50 to 60 years who constituted 6.25%. Many of the respondents stayed in the deprived area of Maweni and constituted 35.42%. Majority of the respondents were not employed and constituted 54.16%. The minorities of the respondents were employed as Shoemakers and Garbage Collectors, who constituted 2.08% of the respondents. Most of the respondents were not married, constituting 62.5%. Also, many of the respondents had one child and constituted 31.25%, and many had been on methadone for 3 months.

4.5 Demographic Characteristic of Programme Staff Working on Methadone Programme

This study has analyzed the demographic characteristics of programme staff working on the Methadone programme as indicated in Table 4.5 below.

Table 4.5: Distribution of demographic characteristics of the programme staff working on methadone programme

Demography	**Respondents**	**Frequency**	**Percentage**
Gender	Male	4	57.14%
	Female	3	42.86%
	Total	**N=7**	**100**
Age	20 – 30 years	1	14.28%
	30 – 40 years	3	42.85%
	40 – 50 years	3	42.85%
	Total	**N=7**	**100%**
Where the programme Staff stay	Maweni	3	42.85%

	Ngala	2	28.57%
	Shella	1	14.28%
	Barani	1	14.28%
	Total	**N=7**	**100%**
Designation	Clinician	1	14.28%
	Programme Officers	3	42.85%
	Outreach workers	2	28.57%
	Counsellor	1	14.28%
	Total	**N=7**	**100%**
Experience of the Staff on the programme	1 week to 1 month	1	14.28%
	1 month to 2 months	1	14.28%
	2 months to 3 months	0	0
	3 months to 4 months	0	0
	4 months to 5 months	5	71.42%
	Total	**N=7**	**100%**

Table 4.5 above indicates that the majorities of the respondents were males and constituted 57.14%. Many of the programme staffs were between the ages of 30 to 40 years and 40 to 50 years, constituting 42.85%. Many of the respondents stayed in the deprived area of Maweni and constituted 42.85%. Also, many of the respondents were programme officers who constituted 42.85%. Most of the programme staffs had an experience of between 4 months to 5 months, which constitutes 71.42%.

4.6 Testing Hypothesis Using Chi-Square on Criminal Behaviour among Clients on Methadone Therapy in Kilifi County

Null Hypothesis

Methadone substitution therapy has no influence on criminal behaviour among clients on methadone therapy in Kilifi County.

Table 4.6: Questionnaire results on criminal behaviour among clients on methadone therapy in Kilifi County.

Variables	**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
Some clients in the programme still commit crime	0	2	4	6	5
whether commitment of crime while in programme is a problem	8	10	11	5	4

Findings from Table 4.6 indicate that majority of the respondents agree with the statement that some clients in the programme still commit crime. Majority of the clients were undecided with the statement that committing a crime while in methadone programme is a problem.

Table 4.7: Chi-square test results on the criminal behaviour among clients on methadone therapy in Kilifi County

O/N	**O**	**E**	**(O-E)**	**(O-E)2**	**(O-E)2/E**
1	0	2.472727	-2.47273	6.11438	2.472727
2	2	3.709091	-1.70909	2.920992	0.787522
3	4	4.636364	-0.63636	0.404959	0.087344
4	6	3.4	2.6	6.76	1.988235
5	5	2.781818	2.218182	4.920331	1.768746
6	8	5.527273	2.472727	6.11438	1.10622
7	10	8.290909	1.709091	2.920992	0.352313
8	11	10.36364	0.636364	0.404959	0.039075

9	5	7.6	-2.6	6.76	0.889474
10	4	6.218182	-2.21818	4.920331	0.791281
				TOTAL	**10.28294**

Degree of Freedom 4 = 9.488
Chi-Square test results = 10.28294
9.488 < 10.28294
Since the degree of freedom at 4 was less than the Chi-square value, the null hypothesis that methadone therapy has no influence on criminal behaviour is accepted.

4.8 Analysis of Variables

Other variables, which include the type of crime committed by the respondents, reasons for committing such crimes, whether the respondents have been arrested, and the reasons for such arrests have been analyzed and presented in the Table 4.8 below.

Table 4.8: Analysis of other variables

Variable	**Description**	**Frequency**	**Percentage**
Type of crime committed	No Crime	37	67.27%
	Drug Abuse	1	1.81%
	Stealing	16	29.09%
	Robbery	1	1.81%
	Total	**N=55**	**100%**
Reasons for committing such crimes	No Crime	37	67.27%
	To buy drugs	12	21.81%
	Livelihoods	6	10.90%
	Total	**N=55**	**100%**
Whether the respondents have been arrested	Yes	43	78.18%
	No	12	21.81%
	Total	**N=55**	**100%**
Reasons for such arrests	No Arrests	43	78.18%
	Drug Possession	11	20%
	Stealing	1	1.81%
	Total	**N=55**	**100%**

Table 4.8 above indicates that the majority of the respondents did not commit any crime and constitute 67.27%. For those who committed a crime, the main crime committed was stealing, constituting 29.09%. Other kinds of crime included drug abuse and robbery, constituting 3.62%. The majorities of the respondents did not commit any crime while on methadone therapy, which constituted 67.27%. Majority of those who committed crime cited the reason being to get money to buy drugs, while minority cited the reason of sustaining their livelihoods. The majority of the respondents were not arrested and constituted 78.18%. Many of those arrested were charged with drug possession and stealing.

4.9 Testing Hypothesis Using Chi-Square on Drug Abuse among Clients on Methadone Therapy in Kilifi County

Null Hypothesis

Methadone substitution therapy has no influence on drug abuse among clients on methadone therapy in Kilifi County.

Table 4.9: Questionnaire results on drug abuse among clients on methadone therapy in Kilifi County

Variables	**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
Whether clients enrolled in methadone programme still	6	3	2	8	5

consume abuse drugs					
Whether clients enrolled in methadone programme experience health problem as a result of mixing methadone and other drugs	6	12	7	5	1

Findings from Table 4.9 indicate that majority of the respondents strongly disagree with the statement that some clients in the programme still consume illegal drugs. Majority of the clients were disagree with the statement that clients on methadone programme experience health problems as a result of mixing methadone and other illegal drugs.

Table 4.10: Chi-square test results on drug abuse among clients on methadone therapy in Kilifi County

O/N	**O**	**E**	**(O-E)**	**(O-E)2**	**(O-E)2/E**
1	6	3.906977	2.093023	4.380746	1.121262
2	3	4.465116	-1.46512	2.146566	0.480741
3	2	5.023256	-3.02326	9.140076	1.819552
4	8	7.255814	0.744186	0.553813	0.076327
5	5	3.348837	1.651163	2.726339	0.814115
6	1	3.093023	-2.09302	4.380746	1.416332
7	5	3.534884	1.465116	2.146566	0.607252
8	7	3.976744	3.023256	9.140076	2.298382
9	5	5.744186	-0.74419	0.553813	0.096413
10	1	2.651163	-1.65116	2.726339	1.028356
				TOTAL	**9.758731**

Degree of Freedom 4 = 9.488
Chi-Square test results = 9.758731
9.488 < 9.758731
Since the degree of freedom at 4 was less than the Chi-square value, the null hypothesis that methadone therapy has no influence on drug abuse is accepted.

4.10 Analysis of Variables

Other variables include the type of drug used by the respondents, health problems experienced, and the type of health problem experienced as indicated in Table 4.12.

Table 4.11: Analysis of other variables

Variable	**Description**	**Frequency**	**Percentage**
Respondents who abused drugs on the programme	Yes	24	43.63%
	No	31	56.36%
	Total	**N=55**	**100%**
Type of drug abused	Not Abused drug	31	56.36%
	Heroin	14	25.45%
	Marijuana	6	10.90%
	Beer	4	7.27%
	Total	**N=55**	**100%**
Respondents who experienced health problem	Yes	42	76.36%
	No	13	23.63%
	Total	**N=55**	**100%**

Type of health problem experienced	No Health problem Experienced	42	76.36%
	TB	2	3.63%
	Chest pain	4	7.27%
	Stomach pains	3	5.45%
	Diabetes	1	1.81%
	Meningitis	1	1.81%
	Skin disease	1	1.81%
	Headaches	1	1.81%
	Total	**N=55**	**100%**

Table 4.11 indicates that most of the respondents 56.36% in the programme do not abuse drugs. The type of drug which is abused by the respondents is Heroin, which constituted 25.45%. Other drugs abused by the respondents include Marijuana and Beer, which constituted 10.90% and 7.27% respectively. The respondents who have health problems are very few they constituted 23.63%. The type of health problems the respondents are suffering majority of them suffer from chest pains which constitute 7.27%.

4.11 Testing Hypothesis using Chi-Square on HIV risk behaviours among clients on methadone therapy in Kilifi County

Null Hypothesis

Methadone substitution therapy has no influence on HIV risk behaviours among clients on methadone therapy in Kilifi County.

Table 4.12: Questionnaire results on HIV risk behaviours among clients on methadone therapy in Kilifi County

Variables	**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
Whether clients enrolled in methadone programme still involved in HIV risk behaviours	1	2	5	5	4
The use of condoms is common among clients with multiple partners.	3	8	4	13	10

Findings from Table 4.12 indicate that majority of the respondents agree and were undecided with the statement that some clients enrolled in methadone programme still involved in HIV risk behaviours. Majority of the clients were agreeing with the statement that clients on methadone programme the use of condoms is common among clients with multiple partners.

Table 4.13: Chi-square test results on HIV risk behaviours among clients on methadone therapy in Kilifi County.

O/N	**O**	**E**	**(O-E)**	**(O-E)2**	**(O-E)2/E**
1	1	1.236364	-0.23636	0.055868	0.045187
2	2	3.090909	-1.09091	1.190083	0.385027
3	5	2.781818	2.218182	4.920331	1.768746
4	5	5.563636	-0.56364	0.317686	0.0571
5	4	4.3272273	-0.32727	0.107107	0.024752
6	3	2.763636	0.236364	0.0558668	0.020215
7	8	6.909091	1.090909	1.190083	0.172249
8	4	6.218182	-2.21818	4.920331	0.791281
9	13	12.43636	0.563636	0.317686	0.025545
10	10	9.672727	0.327273	0.107107	0.011073

	TOTAL	**3.301176**

Degree of Freedom (r-1) (c-1) 4 = 9.488
Chi-Square test results = 3.301176
9.488 >3.301176
Since the degree of freedom at 4 was more than the Chi-square value, therefore we reject the null hypothesis that methadone therapy has no influence on HIV risk behaviour.

4.12 Analysis of Other Variables

Other variables such as sharing of syringes, reasons for sharing syringes, having multiple sexual partners, reasons for having multiple sexual partners, the use of protection during sex, condom use, and the knowledge about proper use of condom have been analyzed as indicated in Table 4.15.

Table 4.14: Analysis of other variables

Variable	**Description**	**Frequency**	**Percentage**
Sharing of syringes during the programme	Yes	3	5.45%
	No	52	94.54%
	Total	**N=55**	**100%**
Why the respondents shared syringes	No	53	96.36%
	Syringes out of reach	2	3.63%
	Total	**N=55**	**100%**
Having Multiple sexual partners	Yes	17	30.90%
	No	38	69.09%
	Total	**N=55**	**100%**
Reasons for having multiple sexual partners	No multiple sexual partners	35	63.63%
	To buy drugs	15	27.27%
	Livelihoods	5	9.09%
	Total	**N=55**	**100%**
Use of protection during sex	No	7	12.72%
	Yes	48	87.27%
	Total	**N=55**	**100%**
Condom use	Yes	11	20%
	No	44	80%
	Total	**N=55**	**100%**
Frequency of Condom Use	No	2	3.63%
	Always	25	45.45%
	Sometimes	24	43.63%
	Once	4	7.27%
	Total	**N=55**	**100%**

Table 4.14 above indicates that very few respondents shared syringes during the programme and constitute (5.45%). The respondents who shared syringes cited that syringes were out of reach and they had to share, however they are very few respondents and constitute (3.63%). Most of the respondents do not have multiple partners and constitute (69.09%). Very few of the respondents said that they had multiple sexual partners because of livelihoods and constitute (9.09%). Most of the respondents use protection during sex and constitute (87.27%). Most of the respondents always use condom and constitute (45.45%).

5.0 Summary Of Findings, Discussions, Conclusions And Recommendations

5.1 Introduction

This chapter presents the findings, discussions, conclusions and recommendations for further research.

5.2 Summary of Findings

The main purpose of the study was to investigate the influence of methadone substitution therapy on criminal behaviour, drug abuse, and HIV risk behaviour among drug users in Kilifi County by The Omari Project Organization. Three variables were involved in the study, namely the influence of criminal behaviour among clients on methadone therapy programme, the influence on drug use and abuse, and the influence on HIV risk behaviour among clients on methadone therapy programme.

The first objective investigated the extent to which methadone therapy influences criminal behaviour among clients on methadone programme. Some of the indicators which were involved in the study include commitment of crime by the respondents, type of crime committed, and reasons for committing such a crime, whether the respondents were arrested and the reasons for such arrest were studied as indicators. A hypothesis was tested using Chi-square test and other indicators were analyzed using percentages. The Chi-square test result was (10.28294) which was less than the degree of freedom at (4 = 9.488). Therefore the null hypothesis was accepted which stated that Methadone substitution therapy has no influence on criminal behaviour among clients on methadone therapy in Kilifi County.

The second objective investigated the extent to which methadone substitution therapy influences drug abuse among clients on methadone therapy. Some of the indicators include whether the respondents abused drugs during the programme, the type of drug abused, whether they experienced any health problem, and the kind of health problem experienced by the respondents. A hypothesis was tested using Chi-square test and the other indicators were analyzed using percentages. The Chi-square test result was (10.82113) a value which was more than the value for the degree of freedom at (4=9.488). This meant therefore, the null hypothesis was accepted which stated that Methadone Substitution Therapy has no influence on Drug Abuse among clients on methadone therapy.

The third objective investigated the extent to which methadone therapy influences HIV risk behaviour among clients on methadone programme. Some of the indicators include; sharing of syringes among the respondents, reasons for sharing syringes, having multiple sexual partners, reasons for having multiple sexual partners, the use of protection during sex, condom use, frequency of using condom and knowledge of proper use of condom. A hypothesis was tested using Chi-square test and other indicators were analyzed using percentages. The Chi-square test result was (3.301176) a value which is less than the value for the degree of freedom at (4=9.488). This meant that therefore, the null hypothesis was rejected which states that Methadone substitution therapy has no influence on HIV risk behaviours among clients on methadone therapy.

5.3 Discussion

The findings of the study indicate a significant relationship between methadone therapy and crime among clients on methadone program. Most of the clients on methadone program are not involved in criminal activity to get money and buy drugs. The findings of this study are confirmed by studies which were done by Anglin and Speckart (1988) on narcotics use and crime in the United States.

In another study about the effectiveness of methadone maintenance treatment, Ward, Mattick, and Hall (1994) revealed that the patients on methadone treatment reported a reduction of 80% in the number of crimes after their condition had stabilized on methadone. The study also revealed a significant relationship between methadone therapy and drug abuse among clients on methadone programme. The study revealed that most of the clients on methadone program are not involved in drug abuse. Findings from this study are similar to those reported by Michels, Stover, and Gerlach (2007), who investigated substitution treatment for opioid addicts in Germany. The study revealed that there is a reduction in the use of illegal drugs. The study also revealed a significant relationship between HIV risk behaviours among clients on methadone programme. The study revealed that most of the clients are involved in HIV risk behaviour of engaging in unprotected sex.

5.4 Conclusion

The findings of the study indicate a significant relationship between methadone therapy and crime among clients on methadone program. Most of the clients on methadone program are not involved in criminal activity to get money and buy drugs. The study also revealed a significant relationship between methadone therapy and drug abuse among clients on methadone programme. The study revealed that most of the clients on methadone program are not involved in drug abuse. The study also revealed a significant relationship between HIV risk behaviours among clients on methadone programme. The study revealed that most of the clients are involved in HIV risk behaviour of engaging in unprotected sex.

5.5 Recommendations

This study realized important findings that have influence on the outcome of the methadone therapy programme. Based on the findings the study recommends the following;

I. Cooperation between the clients and the health workers which would make the clients active participants in their treatment program and evaluation e.g. in providing urine samples. Urinalysis is undertaken in general because users are not trusted through the results the health worker could easily tell if the client has abused drugs and take necessary actions on time.
II. Multi-stakeholder's involvement is critical to sustain the programme in the long-run. Religious leaders need to be involved to provide spiritual nourishment to the clients, other community leaders who can provide a smooth integration of the methadone clients to the community, the business community who can provide a source of employment to the methadone clients among others.
III. Take away dose to the clients are critical for maintaining normality in an individual's life. The inflexibility of clinic opening hours makes it very difficult for many to make it to their place of work on time among other reasons.

5.6 Suggestions for Further Research

Emanating from the findings, the study recommends the following concepts for further study;

I. Influence of the family of the clients on methadone therapy programme
II. Influence of stakeholders participation on methadone therapy programme

6.0 References

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