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Assessment of the Impact of Methadone Assisted Treatment (Mat) On Combating Drug Addiction in Tanzania

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Abstract

This study examines the extent to which Methadone-Assisted Treatment (MAT) is used to redress drug addiction at Mwananyamala Referral Hospital in Tanzania. A mixed-methods design was employed, with 260 participants recruited from the MAT Clinic at the hospital. The results show that while there are efforts to increase availability of MAT Clinics, many clients still face barriers in accessing services. The study highlights the importance of outreach programs and community-based initiatives in identifying and referring clients to MAT services. Furthermore, the findings suggest that clients who have relapsed or defaulted from treatment face significant challenges in accessing services, highlighting the need for targeted interventions to support individuals struggling with addiction.

Keywords: Methadone-Assisted Treatment (MAT); Drug addiction; Substance abuse treatment; Public health intervention; Tanzania

1. Introduction

The global trend of drug abuse has been increasing steadily over the years, with an estimated 274 million people affected worldwide in 2019, up from 25 million in 1960 (UNODC Report, 2019; UNODC, 2008). The majority of those affected are young people between the ages of 15 and 64 (UNODC Report, 2019; UNODC, 2008). Non-medical analyses suggest that youths often become drug addicts after experimenting with drugs to experience pleasure, relaxation, or social acceptance (National Survey on Drug and Health, 2019; Brian, 2019; Germany Country Drug Report, 2019).

Almost every country is grappling with this issue, with notable cases including the United States (21 million users), Europe (17.5 million users), Germany (5.3 million users), China (2.5 million users), the Netherlands (14,000 users), Vietnam (181,396 users), Malaysia (17,474 users), and Indonesia (1.1 million users) (National Survey on Drug and Health, 2019; Brian, 2019; Germany Country Drug Report, 2019; National Anti-Drugs Agency, 2018; UNODC-Country Programme for Indonesia, 2017; Zhang, 2016; Windles, 2016).

In Africa, over 34 million people are affected by drug addiction (UNODC Report, 2019; Ndinda, 2013). Countries with high prevalence rates include South Africa (11 million users), Nigeria (14.3 million users), and Guinea Bissau (600,000 users) (UNODC, 2018). Similar negative drug-related outcomes have been reported in Tanzania since the 1980s. As of 2017, an estimated 500,000 people were victims of drug addiction (DCEA Report, 2018).

In response to the growing epidemic of opioid abuse, various strategies have been implemented globally to address the problem and support individuals struggling with addiction. One such approach is the use of Methadone-Assisted Treatment (MAT) programs. MAT programs involve the use of medications combined with counseling and patient monitoring to effectively manage opioid use disorder and reduce overdose deaths. Medications approved for MAT include methadone, buprenorphine and Suboxone (a combination of

buprenorphine and naloxone), and naltrexone (Maglione, 2020). These medications have been increasingly administered orally to suppress drug injecting, needle sharing practices, and the use of short-acting opioid drugs like heroin.

Historically, MAT was introduced in the 1940s as an alternative treatment for individuals struggling with opioid addiction (Maglione, 2020). The Food and Drug Administration (FDA) and the World Health Organization (WHO) have approved MAT as a evidence-based treatment for opioid use disorder (OUD) (WHO, 2018). The criteria for MAT programs, as established by WHO and FDA, include regular clinic attendance, recent drug abuse cases, and clinic location accessibility (WHO, 2018).

MAT programs have been implemented in various countries worldwide, including the United States, Germany, the Netherlands, China, Malaysia, Indonesia, Vietnam, and Tanzania (Tanzania-National Health Policy, 2017; Laswai, 2017). In Tanzania, MAT programs were first launched in Dar es Salaam at Muhimbili National Hospital in 2011 (Tanzania-National Health Policy, 2017).

In Tanzania, the MAT program was expanded to Mwananyamala Hospital in Dar es Salaam in January 2013 (DCEA Report, 2020). By May 2019, the program had enrolled 1,988 clients, with 1200 clients remaining in the program, 60 having graduated, and 384 having defaulted (DCEA Report, 2020).The introduction of MAT programs in Tanzania has received government support and is overseen by the Ministry of Health and the Drug Control and Enforcement Authority (DCEA), which sets standards for all MAT programs and serves as a watchdog (Khamis, 2018).

Despite the effectiveness of MAT programs in combating drug addiction, there are still concerns about relapse cases and defaulters. According to DCEA Report (2020), there were 384 relapse cases at the MAT clinic at Mwananyamala Referral Hospital in 2019. The problem of drug addiction in Tanzania is significant, with an estimated 500,000 people affected (DCEA Report, 2018). The majority of these individuals are from urban areas such as Dar es Salaam and Kinondoni Municipality (DCEA Report, 2018).

The study aims to examine the extent to which Methadone Assisted Treatment is used to redress drug addiction at Mwananyamala Referral Hospital, Tanzania.

2.0 Materials And Methods

2.1 Area of the Study

This study was conducted at Mwananyamala Referral Hospital in Kinondoni Municipality, Dar es Salaam. The hospital was selected because of its high population of drug addicts, with over 200,000 individuals affected in Dar es Salaam, and 60,000 of those in Kinondoni specifically (Drug Control and Enforcement Authority, 2018). Another reason for choosing Mwananyamala Referral Hospital is the availability of the Methadone-Assisted Treatment (MAT) program, which provides treatment and therapy services for drug addiction.

2.2 Research Design

This study employed an explanatory sequential mixed-methods research design. The design began with quantitative data collection and analysis, followed by qualitative data collection and analysis. The qualitative data provided insights that informed and expanded on the quantitative findings (Ivankova et al., 2006). In this study, the qualitative findings informed and were integrated with the quantitative findings.

2.3 Population of the Study

The study participants were recruited from the MAT Clinic at Mwananyamala Hospital. The target population consisted of 800 individuals, including drug addicts attending Methadone treatment at the hospital, social welfare officers, nurses, and doctors involved in the MAT program.

2.4 Sample Size

In quantitative studies, an adequate and unbiased sample size is crucial, as it determines the extent to which research findings represent the entire population. Various authors recommend a sample size of at least 100

(Hair et al., 1998) or between 30 and 500 respondents (Roscoes, 1975) to ensure reliable results. This study used the Krejcie and Morgan (1970) formula to calculate a sample size of 260 participants for a population of 800 individuals. A total of 260 respondents were selected for this study, including continuing clients attending the MAT clinic and three MAT staff members (nurses and doctors) at Mwananyamala Referral Hospital.

The eligibility criteria included participants who were 20 years old or above, had a self-reported history of heroin injection, and were able to provide informed consent.

2.5 Data Collection

Both primary and secondary data collection methods were used in this study. Primary data were collected directly from the field and were original in character (Kothari, 2014). Closed- and open-ended questionnaires and interviews were used to gather information from MAT clients, social welfare officers, doctors, and nurses. Secondary data were obtained from existing sources that had undergone statistical processing (Kothari, 2014), including books, journals, articles, and other readily available scientific findings that helped broaden our understanding of the research problem.

2.6 Data Analysis

Descriptive statistics were used to analyze the data using Statistical Package for Social Sciences (SPSS) software version 20. This was used to generate frequency distributions, percentages, tables, figures, graphs, pie charts, and bar graphs.

Qualitative data analysis involved transcribing and writing up interview narratives using Microsoft Word Software. The analysis followed all steps of qualitative data analysis and organized the data into main categories and subcategories according to the research objectives. The analysis was completed and presented based on the research objectives.

3. Results And Discussions

A question on the extent to which MAT is used to redress drug addiction was asked. This was addressing the first objective. The purpose of this objective was to examine how MAT Clinics are effectively used to help drug addicts to redress drug addiction. To achieve this objective a number of sub questions were asked as pointed hereunder:

3.1 Availability of MAT-Clinic in the client's area of residents

Availability of MAT Clinics is an indication of the Government's positive commitment in combating drug addiction. Findings show that 90 (82%) respondents said that there is no MAT-clinic in their area of residence. Only 20 (18%) (See Table 1) respondents said there is MAT-clinic near their area of residence. Seemingly, these are the ones who live near Mwananyamala Referral Hospital. Those who said there is no MAT-clinic in their area of residence still travelled long distances to reach MAT- Clinic services. In the beginning, there was only one MAT Clinic at Muhimbili National Hospital. Realizing the problem of shortage of MAT- Clinic and increased number of addicts, the Government decided to build more MAT Clinics to address the shortage. Additional Clinics that were built include: Mwananyamala and Temeke in Dar es Salaam.

This implies that there is ground work done to improve MAT-Clinic services in Dar es Salaam and the country at large and thus redressing drug addiction. Similar observations were made by URT (2007) that the President's Office, Regional Administration and Local Government is extending health services to the societies by building infrastructures and increasing the number of health practitioners by employing a number of new health practitioners to fill their gap. The objective is to provide health services equitably based on geographical location (URT, 2007). Based on the findings above and the number of clients who attend MAT-Clinic at Mwananyamala Referral Hospital to get the treatment on daily basis, it is apparent that there are clear efforts made to redress the problem of drug addiction.

Table 1: Show availability of MAT-Clinic in the client's area of residents

Response	Frequency	Percentage
Yes	20	18%

No	90	82%
	110	100%

3.2 Mechanism used to register clients to MAT-Program

MAT Program aims at reducing drug addiction by offering Methadone Assisted Treatment. To get clients to be registered in MAT Clinic various stakeholders are involved including NGOs, MAT Clients, and LGAs. These do the following activities:

(i) Identify and bring the addicts to MAT Clinics

Non-Government Organizations identify and bring the addicts to MAT Clinics. Other clients are brought by friends or relatives who are MAT-Clients within the program and the Local Government Authority after being identified by the members within a community (URT, 2016). The clients who used drugs are admitted at the MAT Clinic under costs met by Non-Governmental Organizations (NGOs)such as includes MEFADA, ASSASI and Step-Up(URT, 2016).

(ii) Perform outreach programs

Findings from interview showed that these NGOs perform outreach programs to reach the drug users at their hot sports or camps where they use drugs.

(iii) Educate the drug users on MAT-Clinics

Outreach workers educate and inform the drug users on the availability and treatment services.

(iv) Establish dropping centers for drug addicts

The NGOs have dropping centers where drug users get place to rest during the day, be given information and education on drug abuse, including preparation and screening to qualify to enroll in Methadone Assisted Treatment program. Drug users who are ready for treatment are prepared and screened for some period depending on their condition and thereafter enrolled to MAT Clinic.

The findings indicate that, Mwananyamala MAT clinic has a policy of enrolling new clients every Friday under no screening conditions. Findings of the Mapping of people who use drugs and people who inject drugs in selected regions of Tanzania indicate that, in most of regions female who used drugs were present but not visible at hotspots as they use drugs at hidden places. The NGOs do this in order to encourage addicts struggling with drug abuse withdrawal to access treatment.

The findings indicate that, 65% of the respondents were brought through outreach programs of NGOs to MAT Clinic, 20% of the respondents got information from friends who had attendedMAT-Clinic.However,15% of the respondents were brought by the LGA through community point out programs. This study generally observed that, respondent shad little information on the availability of services and treatment for drug abuse.

Table 2 show the mechanism used to register clients to MAT-Program

Types of mechanism	Frequency	Percentage
Bought by NOGs	72	65%
Bought by MAT-Clients	22	20%
Bought by LGO	16	15%
	110	**100%**

Furthermore, most of addicts who used drug were not aware of the dangers of drug abuse among other things. Evidence in this study indicates that, those who quit drugs use had no idea of where to go and what to do because of the environments that drove them to drug abuse. The following quote extract shows how one of the respondents got into the drug use habit:

> *I grew up in well-off family; I went to a good school, got Ordinary Secondary Certificate with division three. But guess what? Drug addiction does not discriminate, I had a lot of opportune and unfortunately, I made a lot of bad choices. I had already been dipping in drugs when I was introduced to heron about six years ago. I became addicted quickly and I ended up moving to ghettos to live with my friends, just to be closer the drugs. I had a good job at a Hotel, but I lost my job and everything I value because of drugs"* (one of the MAT-Client quoted).

Giving almost similar comments, another interviewee quoted:

My friend informed me of the Mwananyamala Hospital which enrolled women for clinic services without condition. I decided to enroll for the service as I was tired of using drugs. I started attending the clinic, but I relapsed when I realized I had a six months pregnancy and still used drug. I was very lucky the outreach worker found me in that condition and advised me for methadone Clinic or sober house. I chose to go to a clinic for methadone. Since, I could not risk another relapse, which could put my child in danger of drug. My daughter is now six months old. Unfortunately, I don't even remember who the father of my baby is. The biggest challenges I have is I have to bring my baby to the clinic with me despite the risks of being contaminated with diseases from hospital surrounding" (one of the MAT-Client quoted).

3.3 Attendance to Methadone Assisted Treatment-clinic

Following the increased number of people who are victims of drug addiction in Tanzania, the government started taking a number of actions to address the problem including establishment of MAT-program. Establishment of this program is an indication of the Tanzania Government's commitment to reduce the impacts of drug addiction. Therefore, it was considered important to track the attendances of clients in this clinic in order to gauge the extent to which proper attendances and adherence to perception can reduce the impacts of drugs addiction.

3.3.1 The trend of MAT-clinic attendance by clients

A systematic analysis of client's attendance to MAT-Clinic showed that 95(86%) clients attended MAT-clinic at Mwananyamala Referral Hospital despite the distances. Out of these15 (14%) (See Table 3) clients had attended other clinic including Muhimbili National Hospital and Temeke clinic before joining Mwananyamala Referral Hospital. This high attendance is an implication of the positive impact MAT has in addressing the problem of drug addiction. Although statistics are hard to come by, interviews showed that the number of addicts in the hot sports is dropping.

The implication here is that, MAT-clinics are increasingly used to redress drug addiction despite the minor challenges encountered by the clients. Data show that even thou most of the clients lived far away still they attended MAT services. By implication, the findings above show that there is low rate of Non-attendance of addicts in MRH-MAT-clinic. This is big achievement. These sentiments are in accord with the findings of Wolff *et al* (2019); Addicts who do not attend MAT-Clinic on regular bases are a challenge. Non-attendance is associated with an increased risk for hospitalizations and emergency MAT visits.

Moreover, non-attendance may disrupt continuity of care resulting in reduced health outcomes example brain inability to function and relapse. Given the findings above it can be concluded that there is very high correlation between attendance, uses of methadone and low rate of drugs addiction. This finding is in line with result reported by Seushi (2013) who also found that their significant association between adherence, MAT-clinic attendance, methadone treatment acceptance and overcoming drugs addiction. The proportion of participants adhering to methadone treatment at MNH was 75% (460).

Table 3: Show the trend of MAT-clinic attendance by clients

Response	Frequency	Percentage
Other MAT-clinic	15	14%
No (MRH-MAT-Clinic)	95	86%
	110	**100%**

Regarding satisfaction, the findings from the interview show that the trend of MAT-clinic majority of the clients attending the services afresh at Mwananyamala Referral Hospital despite the distances. However, few of the clients had attended other MAT-clinic before registered at Mwananyamala Referral Hospital. This supported by several participants' who were quoted explaining as follows;

"…. Before join here I was attend Muhimbili National Hospital but after two years I request to be registered here this is because I live around Mwananyamala to I attend Muhimbili was difficult for sometimes…" (One of the MAT-client said)

Another interviewee quoted

"… MEFEDA brought me here about three years and several changes includes behavior even my health…" (MAT-client quoted)

Giving almost similar comments, another interviewee quoted:

"… Since from the start i have been registered here for the treatment and it is about four years since they I received well treatment and …" (One of the MAT-Client quoted)

3.3.2 Methadone Assisted Treatment Attendance schedule

Because there are therapeutic benefits of daily attendance to MAT clinic, it was considered important to track client's daily attendance. Therefore, the consideration of clients' attendance schedule was significant in establishing the effectiveness of MAT-Clinic. As regard to this, findings show that 96(87%) respondents said that clients attended clinic every day to access the services. On the contrary, 14 (13%) respondents said that the clients attended once a week. These were the one who had reached a good stage of recovering (voluntary withdrawal).

Based on the above findings, it evident that there two type of clients. First are the ones who attend on daily basis and second are the ones who attend once a week (under Take Home-Program).Findings from interview and observational data revealed that two windows were open on daily bases to serve between 900 and 1000 clients. Basically, MAT-Clinic requires the clients to attend on the daily basis.

This has therapeutic benefit to clients as it increases recovery rate. This study also found out clients stayed up to three hours waiting for treatment. During the week, the clinic has a fixed time of operation from 6am to 12 noon. On weekends, the dispensing window opens at 6am and closes at 11am. Drawing from the findings above, it is evident that MAT-clients' attendance schedule is effectively followed.

In a similar fashion, URT (2010) revealed that in ensuring clients are recovering from the addiction, a frequency of attending clinic was divided in three stages with specific attendance schedule for each stage. Furthermore, the stages are divided depending on the methadone dosage stage, that is to say, the first stage (Dose initiation and removal of withdrawal symptoms) in this stage a client attends every morning per day and the second stage (dose stabilization) a client attends every day from Monday to Sunday. However, in the third stage (methadone maintenance), it depends on the environmental situation but a client should attend once a week within eight weeks and mostly clients in this group are those at the stage of voluntary withdrawal.

Table 4: Show the Methadone Assisted Treatment Attendance schedule

Attendance schedule	Frequency	Percentage
Every day	96	87%
A once week	14	13%
	110	100%

Furthermore, the interview was conduct to add more justification on quantitative data and the findings show that clients adhering services every day most of them are not well recovery and the environment are not well supportive especially family members. Furthermore, the clients whom adhere MAT-Clinic once a week are those whom are in Take-Home program (THP) and criteria of the THP the clients show have supportive clients and a client should be at a last stage of recovering. This supported by several participants' who were quoted explaining as follows;

" ….. Am attending clinic every day from Monday to Sunday at 7:00Am in order to receive the services early or before 11:00Am, which is the ending of getting medication (methadone). Even thou am from Mbangara I need to weak up too early before 5:00Am so that I may receives the services. However, there someday am not attending due to the complication of the transportation "(One of the MAT-Client)

Another MAT-Client interview quoted;

"….*Am guard i reach a point I can take and attending clinic once a week because it gives me opportunities to participate effective in my job. Before starts Take-Home program I face number of challenge with my boss sometimes he was reject me for the day when am delayed*

at work and am not free to tell him if am attending MAT-Clinic because my first job after they note am MAT-Clients they reject me"(One of the MAT-Client)

Therefore, their relationship between effectives attendance and effectively drug addiction recovering. As the findings, show that majority of the clients attending frequency to access treatment as the result there positive health benefits.

3.3.3 Length of Methadone Assisted Treatment

To establish how methadone helps individuals to achieve and sustain recovery and to reclaim active and meaningful lives, it was considered important to know the time taken to treat and ensure recovery of the clients. Findings show that the minimum length of methadone treatment is 12 months. However, a long-term maintenance may be required by some clients. More specifically, finding show that 87(79%) respondents who are also MAT-Clients have been in the program for more than 13 months and above. In addition, 16(15%) respondents were in the MAT program for between 7 and 12 months and they are not completely recovered. However, 7(6%) respondents have been in the program for not more than six months. This implies that the clinic has been providing the services over a prolonged period in recovering process.

Nation Health Guideline (2018), made similar observations on the length of Methadone Assisted Treatment whereby it is provided to clients for as long as the client continues to have positive health benefits as of the result as treatment. The client process of recovering can determine the client period of being in the clinic. In addition, America Centre for Addiction and Mental Health (2011) recommended that the length of treatment vary, with the minimum of between one and two years and the maximum of ten years, or more, depending on the individual and daily treatment with methadone may continue indefinitely. Therefore, to see the effectiveness of the clinic capacity in serving the clients it is important to know the perception of clients being in the clinic

Table 5: Show the length of Methadone Assisted Treatment

Length	Frequency	Percentage
The past 1-6 months	7	6%
The past 7-12 months	16	15%
The past 13 and above	87	79%
	110	**100%**

Furthermore, the interview was conducted to add for more clarification on quantitative data and the findings show that MAT-Clients may adhere the services over a long period of time in recovery process may it depend on the many factors includes; the personal interaction with, social support and clients efforts. During the interview with clients, one male informant charged;

"….. I been in the program over three year and this is caused by poor support from the family and community member they don't believe am out of drugs and now am in MAT even sometimes they fail to support even a bus fee money this caused ineffective attendance which lead to the prolong of attending " (One of the MAT-Client)

Therefore, as the clinic has the ability to continue to provide service over a long period as long as the client still in the recovering stages and see positive health benefits. In addition, this ensure the clients the reliability of the services which will enable them to reach the point of voluntary withdrawal.

3.4 Amount of the dosage per Mg and satisfaction

This sub-section analyses the effectiveness of pharmacological intervention and more especially the administration of the right dosage of methadone. It establishes the relative clinical efficacy of moderate Vs high dose of methadone. More clearly, the findings showed that 76(69%) respondents who are also MAT-clients received between 60 and 100 Mgs of dosage per day, 15(14%) respondents received between 110 and150 Mgs and few, 9(8%) respondents received more than 160+ Mgs of dosage per day (See Table 6). To guarantee effectiveness of the MAT-Services right amount of dosage per Mg per a client was ensured. Clients were taking methadone under the control of a nurse and pharmacist until after a period of stability (based on progress and proven, consistent compliance with the medication dosage). This is when a client may be allowed to take methadone at home between program visits.

Table 6: Show the amount of the dosage per Mg

Amount of dosage per Mg	Frequency	Percentage
10-50	10	9%
60-100	76	69%
110-150	15	14%
160+	9	8%
	110	**100%**

Furthermore, the findings show that 102 (93%) (See Table 7) of the respondents said that they were satisfied with the dose they received from the clinic. This is revealed by the findings from interview that after administration of the right dosage most of them functioned normal. Their sleep and thinking patterns were restored back to normal. They did not crave for hard drugs. This implies that the medication (methadone) which they receive was effective. Not only that but also this show that the clinic provide the good services to the clients,

Table 7: Show the satisfaction

Response	Frequency	Percentage
Yes	102	93%
No	8	7%
	110	**100%**

Regarding satisfaction, the findings from the interview show that MAT-Clients were satisfied with the dosage they received. In addition, they were free to comments to the doctor or Social Welfare Officer if the amount of dose was not enough in terms of reducing or adding more so that they could avoid mixing with other unwanted medication or alcohol. This supported by several participants' who were quoted explaining as follows;

> *"…. I receive 100Mg per day and I think am satisfied and am not facing any kind of the problem…"* (Clients interviewee, said)

Another interviewee quoted;

> " ….. *For now, I receive 10 doses per day but am in the program of Take-Home each Monday I take a bottom of medication and every morning I take it. Up to this point of taken 10 dose per day it take me more than 3 years to change my behavior but the office of social welfare they help me a lot then I demand for the reduction. They help us for medical checkup before adding or reduce*"(One of the MAT-Client)

Seushi (2013) made a similar observation that effectiveness MAT-program or services can be measure with the satisfaction of the dosage clients receive per day that will not attract a client to mix with drugs. In connection to that, MAT-Clients they provide medication that made clients to satisfy with the services.

URT (2010) categorized Methadone Assisted Treatment dosage into four stages. The stages were established to ensure clients archive their goals of recovering in specific period with the right dosage. The first stage is initiation and removal of withdrawal symptoms in this stage 15-30Mg on the first day of attending clinic (URT, 2010).

However, health care provider will determine the exact dose and may expand for one week. The second stage is dose stabilization whereby in this stage may take place over a month with 5 to 10 mg range but dose may adjust even three to five day after complete a month. The third stage is methadone maintenance in this the dose can be used for eight weeks and may range 40-60mg and this may depend on the impact of the dose stabilization stage (URT, 2010).

However, this stage four may affected by client's behavior especial uses of unwanted drugs or substance drugs and stability of the clients (URT, 2010). Moreover, in this stage if the clients are facing instability of performance may prolong to six to one-year months. The fourth stage is voluntary withdrawal from Methadone treatment whereby in this stage is when a clients is complete recovering from drugs addiction (URT, 2010).

However, dose provision of dosage to clients may take place over prolong period this depend on the clients body ability to perform and to have positive health benefits as of a treatment (Food and Drugs Administration, 2016).

3.5 Behavioral changes of the MAT-Clients since adhering services

Findings show that 102(93%) of the clients there behavioral have been change after started adhering MAT-Clinic and 8(7%) of the clients they say they did not change their behaviour since they start the treatment. Behavioral in itself is an implication that MAT services are effective. The implication here is that the MAT-Clinics have played a great role in changing clients behavior. This is affected by the use of psychotherapy and medication support (methadone) which are common measures taken to make sure clients change their behavior. Hence, MAT-Clinic provides effectives services in addressing the problem.

America Centre for Addiction and Mental Health (2011), argue clients attending MAT majority are influence by immoral behavior that made them to join the program. In addition, family or friends convince client to join the program after seen the negative of their immoral behavior to the societies. Furthermore, families who have drug addiction clients see MAT benefit not only the people receiving the treatment but also their families, their communities, and society as a whole as the result they influence they to administrating in the program.

However, MAT-clinic can reduce immoral behaviors to clients include reducing illegal use of opioids, criminal activity, deaths due to overdose, behaviors that increase the risk of Human Immunodeficiency Virus (HIV) transmission through needle use, and public health risks (America Centre for Addiction and Mental Health, 2011). Therefore, access the effectiveness of MAT it important to understanding if the clients change their behavior after being administering.

Table 8: Behavioral changes of the MAT-Clients

Response	Frequency	Percentage
Yes	102	93%
No	8	7%
	110	**100%**

Furthermore, the findings from interview show that MAT-Clients are satisfied with the education that they have been given especially on avoiding the things or friends that may influence them to go back to drugs use. This supported by several participants' who were quoted explaining as follows;

> "…. *Since I started, attending clinic the dose is enough that made me to satisfy with the services and we have been given education on how to avoid the environment setting includes friend or alcohol that may lead us to reuse drug*"(One of the MAT-Client said)

Another MAT-Client quoted;

> *"….. group counseling which we have been given each Thursday on different issues such as HIV/AIDS, alcoholism and other bad behavior help me in improve my behavior and building myself as a better person and also the social session help a lot in shape our behavior even our family start to trust me in different financial issues*" (Another MAT-Client said)

Bahati (2016), argues that stratified dosage may influence client to change his or her behaviour and strong desire of reuse illicit drugs. This is because the enough among of dosage provide to clients. Therefore, there is positive relationship between proper dosage given to clients and behavior changes as the findings shows.

3.6 Education provision on avoiding things or friends who can tempt addicts to relapse

Provision of education to MAT clients is an indication of effective MAT programmes and an essential ingredient in overcoming drug addiction. Therefore, as regard education provision, findings show that 110 (100%) respondents revealed that education is provided to MAT-Clients helping the clients to help them avoid things or friends that may lead them to involuntary termination of the treatment. Social Welfare Officers are the ones who ensure education is given to clients. The implication here is that education plays a great role in addressing the problem of drug addiction. This may help the clients to change their behavior and in the recovery process. Furthermore, education is among the important key facts in addressing the

problem because effectiveness of MAT-services also depends on enough education their clients have about the MAT services.

Table 4.9: Show education provision

Response	Frequency	Percentage
Yes	110	100%
No	-	-
	110	**100%**

Furthermore, **s**imilar findings were also established through interview and the respondents showed that education provided was effective in a sense that it helps them to avoid things or friends who could tempt them to relapse. People who were given education before showed positive results.

> "*…. I have been here for a year but when am compare with pervious situation and now there are total different especial the friend which am use to hang out with and mostly of them are drugs user and they don't want to quite but through the education which have been given to us I know how to avoid them….* " (One of the MAT-Client said)

Another MAT-Client quoted;

> "*…. Since I started, attending clinic the dose is enough that made me to satisfy with the services and we have been given education on how to avoid the environment setting includes friend or alcohol that may lead us to reuse drug*" (Another MAT-Client said)

Katrina (2018) argue people whom interact with MAT-Clients may influence clients to be active on inactive in change process. Furthermore, friends who use drugs and interact with MAT-Clients they have high probability of reusing drugs. Hence, Health social worker need to provide education to clients to avoids those kinds of friends. In connection to that, MAT-health social welfare has played great important part in providing education on how to avoid those friends. Provision of health education can reduce drug addiction and help in the treatment of opioid dependence. Also, this includes a set of pharmacological and psychosocial intervention such as cognitive therapy and motivation therapy.

Education is key to preventing future harm associated with opioids use and improving quality of life and well-being of the drug addiction clients (URT, 2016). Health Social Welfare Officer has the obligation of providing psychosocial intervention and support to clients by using direct methods including case work, group work and community work to ensure health education and social education are provided to ensure clients are avoid things and friends who may influence them to defaulters, missed dose or involuntary termination of the treatment (URT, 2016). Based on the finding above it can be concluding that education on MAT plays a positive role in redressing drug abuse. The more educated the less vulnerable they become to drugs.

4. Coclusion And Recommendations

4.1 Conclusion

The study aimed to examine the extent to which Methadone Assisted Treatment (MAT) clinics are used to redress drug addiction in Tanzania. The findings suggest that there is a significant effort made by the government to address drug addiction through the establishment of MAT clinics, with a high attendance rate of 95% of clients attending the clinic at Mwananyamala Referral Hospital despite distances. The study also found that the majority of clients (65%) were brought to the clinic through outreach programs by NGOs, and 20% were brought by friends or family members who were already enrolled in the program. The study highlights the importance of MAT clinics in addressing drug addiction, with clients who attend the clinic regularly experiencing a high recovery rate and low relapse rate. The findings also suggest that there is a correlation between attendance, methadone use, and low rates of drug addiction.

4.2 **Recommendations**

i. Increase awareness: There is a need to increase awareness about the availability and services offered by MAT clinics, particularly among those who are struggling with drug addiction.

ii. Improve accessibility: Efforts should be made to improve accessibility to MAT clinics, including increasing the number of clinics and improving transportation options for clients.
iii. Community outreach programs: Community outreach programs by NGOs and local government authorities can play a crucial role in identifying and bringing drug users to MAT clinics.
iv. Methadone maintenance: A long-term maintenance program should be implemented to ensure that clients can continue to receive treatment without interruption.
v. Client support: Clients should receive ongoing support from healthcare providers, NGOs, and community members to help them stay in treatment and maintain their recovery.
vi. Family support: Family members and loved ones of clients should be educated on the importance of supporting their loved ones in their recovery journey.
vii. Monitoring and evaluation: Regular monitoring and evaluation of MAT clinics should be conducted to assess their effectiveness and identify areas for improvement.

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