

# Barriers to Heroin Injection Behaviour Change among Clients on Methadone Treatment: Experiences from Public Methadone Clinics in Dar es Salaam, Tanzania

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## ABSTRACT

**Background:** It is estimated that there are 50,000 injectable drug users in Tanzania. Tanzania is the first sub-Saharan African country to provide methadone treatment. This study explored barriers to heroin injection behavior change among clients on methadone treatment clinics in Dar es Salaam, Tanzania.

**Methods:** This was exploratory cross sectional study. Purposive sampling was used to select ten participants. In in-depth interview guide was used to collect data. Transcribed data were analyzed manually and subjected to thematic analysis.

**Results:** Various factors hinder heroin injecting behaviour change among methadone clients on methadone treatment. Specifically lack of perceived benefits of methadone treatment i hinder behaviour change of injecting heroin when one is enrolled on methadone treatment clinics. Additionally, social environment contributes to failure to change heroin injecting behaviour among clients on methadone treatment.

**Conclusion:** Different measures should be taken by methadone programs and stakeholders to overcome heroin injecting behaviour among clients on methadone.

**Keywords:** Heroin Injection, methadone, people who inject drugs Tanzania.

**Submitted:** February 4, 2022

**Published:** March 11, 2022

**ISSN:** 2593-8339

**DOI:** 10.24018/ejmed.2022.4.2.1236

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## I. INTRODUCTION

Injecting drug use emerged as a critical concern in the HIV epidemic in Tanzania and in globe. While HIV transmission continues to occur mainly through heterosexual intercourse, transmission via shared injecting equipment carries much higher risk per exposure, making it vital to reach people who inject drugs (PWIDs) with prevention and treatment measures [1], [2]. Many cities along the coast of East Africa have been involved in heroin trade routes between countries that supply in the Middle East and consumer markets in Europe and North America since the mid-1980s [3]. However, a recent increase in the availability of strong, cheap heroin to urban populations has contributed to growth in injecting drug use in Dar es Salaam [4], [5]. Effortless access to heroin combined with countless social and economic forces have further contributed to an increase in injecting drug use [4]. The Tanzania Drug Control Commission estimates presence of 50,000 people who inject drugs nationally [6].

In Dar es Salaam, HIV prevalence within PWIDs has reached crisis proportions. Research estimates that 42% to 50% of PWID in Dar es Salaam are living with HIV [3] compared to an estimated 6.9% prevalence in the general urban population [7]. Any additional drug use by methadone patients may be motivated by psychological processes (cravings, urges, dysfunctional thoughts), negative emotional states (stress, insomnia, conflict with others), positive emotional states (pleasant times, celebrating) or exposure to 'temptation situations' (drug availability, spending time with drug users, social pressure to use, testing self-control) [8]. In addition, self-efficacy that the client has on changing his/her behavior plays a big role on change expected by methadone clients.

Self-efficacy or confidence in ability to remain abstinent is related to alcohol and tobacco treatment outcomes, and client-centered interventions for alcohol problems have sought to strengthen patients' coping self-efficacy [9]. It is established that psychosocial interventions, when tailored to the needs of the individual, can enhance methadone treatment outcomes [10].

In addressing this disaster in PWIDs, in 2009 the government of Tanzania established a national policy to prevent and treat HIV among people who use and inject drugs, including methadone-assisted therapy (MAT) for heroin dependence [5], [41]. Extensive research from a range of settings supports methadone as a long-term, life-saving medical intervention [11]. MAT reduces the morbidity, mortality, and illegal income-generating activities associated with heroin dependence [12]. Among people with opioid dependence and HIV infection comorbidity, MAT can play a critical role in reducing onward transmission and improving health outcomes, in part by enhancing the linkage and adherence to antiretroviral therapy (ART) [10].

A study conducted in 2009 in Tanzania revealed rates of substance use at 17.2%, 8.7% and 0.8% for alcohol, tobacco, and cannabis respectively [13]. While another study, which was conducted to investigate opioid use and associated harm to youths injecting drugs revealed the presence of scenarios of opioid use in Tanzania [14].

Results of a survey conducted in 2013-2014 by [15] in 12 regions of Tanzania shows that cannabis was the most widespread smoked alone or with tobacco and heroin as blend, indicating increased use compared to previous studies. It was also reported that heroin was available in all regions whereas cocaine was less common, likely due to elevated cost and unpredictable accessibility. Substances such as petrol, shoe polish, and glue were used as inhalants [15]. The interventions to overcome use and effects of opioid overdose include treatment of opioid use disorder with an opioid agonist, provision of naloxone to laypersons and the establishment of a supervised injection facility [16].

Tanzania is the first sub-Saharan African country to have established methadone treatment with three working sites. The government of Tanzania launched an opioid treatment program (OTP) using methadone in Dar es Salaam in February of 2011. Oral methadone is the drug of choice available and adopted for use in opioid dependence treatment in Tanzania [17]. Methadone programs have been successful, worldwide, in reducing heroin use, HIV transmission, and criminal behavior including reducing the rate of imprisonment. Methadone Assisted Treatment (MAT) has shown to be effective in Opioid dependence treatment and, reduction of HIV and AIDS spread compared to buprenorphine [18]-[21]. Within its infancy, methadone program has shown similar achievements in Tanzania [22].

There are reports of clients of Methadone Maintenance Treatment and concurrently use heroin and other drug while under treatment program [22]. Continual use, abuse, and drug dependence on a broad range of prescription and nonprescription drugs during treatment pose a major clinical challenge to substance-specific pharmacotherapies like Methadone Maintenance Treatment (MMT) [23]. The behavior has been reported globally, and the prevalence of concurrent heroin use has ranged between 50% and 62% [24]. In Tanzania, twenty percent (20%) of methadone clients were found to continue using drugs while on methadone, more than 13% being positive on heroin [25]. Barriers to behaviour change to complete abstinence of heroin injection behavior while on methadone treatment have only been studied in Europe and Asia [26]. Little has

been done in Tanzania, to explore barriers to change behavior and continue using heroin when enrolled at methadone clinics. As an inquiry to the subject, this study aimed at exploring factors and barriers to heroin injection behavior change among clients on methadone programs in Tanzania. Studies on methadone in Tanzania mainly focused on retention into the program and the risk towards contracting HIV [16], [18], [20], [27]. To our best knowledge, no study has been conducted in Tanzania exploring barriers to heroin injection behavior change among methadone clients. This study, therefore sought to explore barriers to heroin injection behavior change among clients on methadone treatment clinics in Dar es Salaam Tanzania.

## II. MATERIALS AND METHODS

### A. Study Design and Setting

This was exploratory cross sectional study. This study was conducted in Dar es Salaam, a city in Tanzania covering 1,593 Sq2 Kilometres. Dar es Salaam is located along the coast of Indian Ocean, and is the largest city and former capital of Tanzania. It is the largest city in East Africa and the seventh largest in Africa, with population of 5275,300 [27].

### B. Sampling

Temeke and Mwananyamala methadone clinics were selected purposively. Study participants were selected purposively with consideration to gender, experiences in years of heroin use, and the time they have been on methadone treatment to achieve maximum sample variation targeting clients on methadone. Health care workers were involved in the selection of study participants in collaboration with principle researcher. Ten participants were interviewed when saturation point was reached. The study participants included clients, who were intact cognitively, have been in the methadone program for at least a year prior the study, agreed to participate and signed the consent form.

### C. Data Collection Methods

In-depth interview guide was used to collect data. In depth interviews (lasted for an average of one hour) were conducted in a private place where interviewees felt comfortable talking about concurrent behavior of using methadone and heroin without being heard by other clients or health care workers. The questions on the guide focused barriers to heroin injecting behavior change among methadone clients.

### D. Data Analysis

Recorded interviews were transcribed verbatim and translated from Kiswahili into English language. Transcribed data were analyzed manually. Thematic approach was used to analyze data. From the text, meaning units were developed. The themes were derived by focusing on the meaningful units, codes that were developed as well as sub-categories and categories. We went back and forth through the meaning units, codes, sub-categories, and categories in order to have an exhaustive list of themes and

sub themes. Through constant comparison of information at the various stages, we derived main themes as presented in results section.

#### E. Ethical Considerations

Ethical clearance was obtained from Muhimbili University of Health and Allied Sciences Institution Review Board. After obtaining the ethical clearance, permits were sought from both Temeke and Kinondoni Municipal Medical officers and the respective heads of methadone clinics where the study was conducted. Informed consent from participants was sought after a fully explanation of the essence of the study and assurance of confidentiality.

### III. FINDINGS

#### A. Socio Demographic Characteristics of Participants

Ten participants participated in this study. Their ages ranged from 29 to 43. Mean age was 34 years. Among the study participants, only two had secondary education, while the rest had primary school education. Among study participants, four of them were females while the rest were males. With regard to marital status, five of the study participants were single, two of them were cohabiting, and two were married while one was separated.

#### B. Barriers

Different barriers were identified as barriers to heroin injection behaviour change among clients who are on methadone as follows:

#### C. Lack of Resilience to Methadone Dose

Some participants reported that some methadone clients are not satisfied with methadone dose they receive from clinics. Some of them perceive methadone as not enough to satisfy them therefore, they had the feeling that methadone has to be complemented with heroin injection to be satisfied. One had this to say:

*“Some of the methadone clients do not feel the effect of methadone, they are not satisfied with methadone dose which they get, so to get high or to be satisfied they have to get a little bit of heroin injection” (Male, 41 years).*

Some of the participants reported the habit of not being satisfied with methadone treatment especially in the beginning of methadone treatment, which cause some of clients to concurrent use of heroin. Participants reported that on average, it takes up to one month of methadone treatment before one can stop using heroin while on methadone.

*“In the beginning of methadone treatment, it is well known here that when someone starts methadone treatment, he/she will also definitely use heroin in his/her first days of methadone up to one month before stopping heroin use, some take even up to three months. In the beginning of methadone treatment majority of clients are not satisfied with methadone dose and they don't feel that treatment which they are given” (Male, 43 years).*

#### D. Perceived Sexual Pleasure from Heroin

Some participants reported that heroin injection help them to get pleasure in many ways including sexual pleasure. They reported that heroin use delays orgasm during sexual encounters thus leading to long lasting sexual intercourse. This was identified a major reason for methadone clients to continue with heroin injection behavior while on methadone. One participant had this to say:

*“When one uses heroin, he / she lasts longer when having sexual intercourse than the one who doesn't use it. If a man has a girlfriend, and wants her respects him, he uses a little bit of heroin before having sex.....when you are used to that behaviour then you can't have sex without using heroin...” (Female, 32 years).*

#### E. Having A Partner/Friend who Uses Heroin

Participants stated that clients who are on methadone and have partners who use heroin face challenges in stopping heroin injection behavior. They commented that their partners who use heroin to continue using heroin despite being on methadone treatment influence them. One commented:

*“If your partner is still using heroin, no way, you will definitely use it too, even if you are enrolled to methadone clinic (Female, 32 years).*

#### F. Homelessness

Some study participants reported that being homelessness as a barrier to using heroin when enrolled in methadone treatment. They narrated that methadone clients who do not have homes have difficulties in abstaining from heroin injection behavior. It was reported that lack of a place to live among clients on methadone makes them sleep in the corridors or in unfinished buildings where heroin is sold. One participant opined:

*“If you don't have a home, you sleep in the corridors of people's houses, when you sleep in the corridors, and its cold especially in the night, you feel the urge to use heroin., you have to inject heroin yourself, but if you have a home, it's unlikely to be tempted to inject heroin” (Male, 38 years).*

#### G. Lack of Income Generating Activity

Participants mentioned lack of income generation activities among clients enrolled at methadone clinics as a barrier to stop heroin injecting behavior. They stated that heroin selling among methadone clients even after joining methadone program is one of the barriers to stop heroin injecting behavior change. One participant narrated:

*“I don't have any job, when I go back to the street and maskani, (places where drugs are sold), the situation goes back to the same and that is continuing selling heroin, I start selling heroin again. You stop using heroin in the morning; but in the evening, you inject yourself with heroin (Female, 32 years).*

#### H. Lack of Family Support

Lack of family support from someone's family was reported to be a barrier to stop heroin injection behavior.

Some participants reported that lack of support from family leads to difficulties in adherence to methadone treatment. They reported that stigma and rejection by family members discourages the efforts of heroin injecting behavior change amongst methadone clients. One participant had this to testify:

*"It is difficult to stop heroin if you don't have family support, if you don't have family support then maskani (places where drugs are sold) is your savior; it's so easy to stop heroin injection behaviour for those clients enrolled at methadone clinic with family support"* (Female, 32 years).

#### I. Punishment at Methadone Clinics

Participants mentioned frequent suspension from methadone program as one form of punishment given to them as a barrier to stop heroin injection behavior. They stated that health care workers at the methadone clinic could suspend clients from taking methadone for some days or even weeks, leading to the victims going back to heroin injection behavior. Mistakes that methadone clients are punished range from as simple as delay in giving out the number cards to the health care provider to coming to the clinic drunk. One of the participants said:

*"What real hurts is the kind of punishment that we are given by health care providers at the clinic...; imagine a patient makes mistakes and you give him a punishment by denying him methadone treatment for a week!..."* (Female, 32 years).

#### J. Dose Reduction

Some participants reported that methadone dose reduction policy as one of the barriers to stop heroin injection behavior. Dose reduction after a patient is maintained on methadone and stable (no more urge to heroin) is a stage decided by health care workers after discussion with the respective client. One participant stated:

*"Challenges come when health care worker at clinic start reducing the methadone dose, the dose is reduced, and you have to accept that, and fight the craving (arosto) on your own, if you were taking 100 mls of methadone and is reduced to 80 mls. Others methadone users compensate it with heroin injection"* (Female, 32 years).

#### K. Availability of Heroin

Some of the participants mentioned easy availability of heroin drug as a barrier to stop heroin injection behavior. They stated that heroin being available easily and at large scale in the streets where they live hinders the change of heroin injection behavior. Participants proposed restricting entrance of heroin through implementing existing laws on heroin. One participant had this to say:

*"It's difficult to quit heroin injecting; there is a lot of heroin available in the street... For us, who inject heroin, availability of heroin in the streets is very easy, it should be banned"* (Male, 28 years).

#### L. Health Care Provider's Attitude

Participants mentioned health care providers' attitude as a

barrier to stop heroin injecting behavior. Participants commented that some health care provider's negative attitude to methadone clients leads to poor provider-clients' relationship and hence continuing heroin injecting behaviour. Consequently, a client may stop attending methadone clinic until a friendly health care provider is on duty administering methadone. To deal with the withdrawal symptoms, methadone clients go back to their heroin injection behavior. One of the participants testified:

*"There is hatred between health care workers and us who are on methadone treatment"* (Female, 32 years).

## IV. DISCUSSION

This study explored heroin injection behavior change among drug addicts receiving methadone treatment in Dar es Salaam, Tanzania.

In this study, barriers like age, education level and marital status did not come out as important barriers to stopping heroin injection. This is contrary to findings which have shown young age, low education level and being single as barriers to heroin injection abstinence [23]. The difference could be the fact that these barriers can easily be identified by quantitative study.

Lack of resilience to methadone dose was identified as a barrier to stop heroin injection. Respondents reported the effects of low dose being more conspicuous during the methadone initializing phase and withdraw phase where clients are put on either low dose or the withdraw dose has been sharply reduced leading to compensation by heroin. Previous studies have identified high dose to be effective in heroin abstinence [28], [29] the higher the methadone dose the less likely was to find heroin in urine. For heroin abstinence, clients should be individualized and asked for their adequate dose to quench heroin urge [30].

Perception of unique pleasure from heroin injection is another common barrier to heroin injection behavior change when one is enrolled at methadone treatment clinics. This has been reported previously as drug addicts get some kind of euphoria when injecting the needles [31]. Injectable methadone has helped clients with such a strong desire for injection [31]. In this study, the methadone program uses oral methadone, necessitating them to look for needle gratification by heroin injection.

Peer pressure or having a partner who uses heroin provide a similar social cycle of life eventually becoming barriers for heroin injection behavior change. Continuing engaging in heroin business as a source of income is also caused by being in the same social cycle. The study findings revealed that income to be of significant importance especially to female clients because sometimes they are forced to practice risk behaviours like being female sex workers. Similar findings have been reported in previous studies [32], [33].

Methadone clients' behavior of trusting heroin for extended time to ejaculation leads to continual use of heroin despite being on methadone treatment. Heroin effects on sexuality have long been documented [34]. Heroin reduces sexual feelings; users feel little sexual desire, engage in less overt sexual activity, and display a marked decrease in



"sensitivity," as particularly evidenced in the extended time to ejaculation and poor quality of the orgasm [34]-[37]. Methadone clients report using heroin for delayed ejaculation without knowing its long term effects which may lead to erectile dysfunction [37]. Counseling and education sessions to methadone clients would be more beneficial by including sexual education to methadone treatment programs.

Poor provider client relationship was reported as barrier to heroin injection behavior change in this study. Health care provider's inappropriate language and stigmatization of methadone clients leads to poor relationship to the extent of clients not taking the prescribed methadone dose when a specific health care provider is a dispenser. Good provider's patient relationship has always enhanced good treatment outcome. Similar findings have been reported by other studies [39].

Of important to note, is the impact of methadone client's suspensions from taking drugs due to mistakes they conduct when at the methadone clinic. Tanzania guideline allows disciplining clients with dignity whenever they commit minor infractions, for example, alcohol and other drug use [40]. In this study, respondents reported denied methadone treatment for up to seven days for misconducts such as chewing gums when they are at clinics. This eventually leads to clients returning to heroin injection to cope with the withdraw symptoms.

Also the respondents reported to be exposed to different quality of methadone compared to the usual one and they consider the methadone to be more diluted compared to usual one as they get withdraw symptoms more frequently than the previous time. Subsequently, they resort into heroin injection to cope with withdrawal symptoms.

## V. STUDY LIMITATIONS

The study relied on self-reports from clients who were on methadone clinics and there are possibilities of recall and information bias. However, the researchers took great care in selecting the timing and places of interviews to ensure that the study participants were comfortable to share their experiences with us. Furthermore, a concern of social desirability bias was anticipated from respondents especially from methadone clients who were likely to provide information that they believed was what the interviewer wanted to hear rather than revealing what actually happens in terms of their personal behaviours concurrent use of heroin and methadone. However, care was taken by employing research techniques such as proper rapport building with study participants and probing throughout the interviews which enabled to counter such limitations. Notwithstanding the limitations, this study shed some lights on reasons behind concurrent use of methadone and heroin among methadone clients.

## VI. CONCLUSION

Methadone clients face different barriers in trying to stop their long-held addiction of heroin injection behavior. Methadone programs should be designed to individualize

methadone dosage, decrease clients' socialization with other friends using drug, and deploy methods such as "mobile methadone" which increases access of methadone to clients. Program policies related to methadone treatment should be user friendly, and whenever possible, punishments for misbehaving should be suggested by the clients themselves.

## ACKNOWLEDGMENT

We express our sincere gratitude to all participants, research assistant, as well as regional, district and local authorities, and others involved in the logistics of the this study. This study would not have been possible without the support of Centers for Disease Control and Prevention.

## CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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