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Erectile Dysfunction among Opiate Addicts Receiving Methadone Maintenance Therapy at Muhimbili National Hospital: A Cross-Sectional Survey

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Abstract

Background

Methadone Maintenance Therapy (MMT) has been reported to be associated with varied grades of erectile dysfunction (ED). The extent of among methadone users in Tanzania is unknown. ED has the potential to negatively affect maintenance therapies and need to be addressed. This study therefore sought to determine the magnitude of ED among methadone maintenance therapy (MMT) among heroin users in Muhimbili National Hospital (MNH).

Methods

A descriptive cross sectional hospital based study was conducted among heroin addicts who were on MMT at MMNH. Swahili version of Sexual Health Inventory Score for Men (SHIM) tool was used to assess ED with its five parameters to assess various components of sexual function and a total SHIM score was used to grade ED. A sample size of 151 patients was calculated to be sufficient to detect an ED rate of 89% and above. Data was analyzed on SPSS version 23 where descriptive statistics were produced. P-value was set at 5% where association was calculated.

Results

A total of 151 clients were interviewed all of which were on heroin and cigarette. Only 4.6% had very high confidence of getting and keeping an erection, 9.3% always got a hard erection to penetrate, 15.2% were always able to maintain erection following penetration, 20.5% did not find it difficult to maintain an erection to completion of the intercourse, only 1.3% was always satisfied with sexual encounter and 11.3% reported not ED at all.

Conclusion and recommendation

ED is a problem among MMT clients at MNH clinics with only about 1 in 10 of the MMT clients reported to be experiencing normal erectile function. More studies are needed to characterize the full extent and effect of ED among substance users in Tanzania.

Key words: *Erectile Dysfunctions, Opiate, Addicts, Methadone therapy.*

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Introduction

The effective action of the penis is very important for practicing sexual intercourse and for continuation of life. Getting penile erection, an important aspect of the above, can be affected by various endogenous and exogenous factors. The resultant inability of an individual to get sufficient penile erection during sexual intercourse due to these factors may result in Erectile Dysfunction (ED). ED can be further classified as organic or psychogenic, with the latter including drug induced ED (1, 2). On the other hand, substance abuse has the potential to result into both organic and psychogenic ED (3). While illicit drugs have been used to enhance sexual performance and satisfaction, their negative effect on sexual desire and ejaculation latency in males have not been fully exploited (4).

Even though ED is rarely seen in males aged <40 years, one of the most important risk factors for ED in this age group is substance use disorders (5). In Tanzania, Methadone Maintenance Therapy (MMT) clinics were opened in 2011. It well established that MMT may predispose an individual to ED and orgasmic dysfunction (6). MMT induced ED has not been shown to be dose dependent (7). Heroin use, which is the main reason MMT is administered has been shown to cause ED with low testosterone as the culprit (8). Likewise, cigarette smoking, alcohol abuse and marijuana use have also been responsible for ED in a dose dependent manner (9 - 10).

Since ED would negatively impact on patient's quality of life and continued MMT use (6-7), it is important to document its magnitude. This is because treatment strategies to address ED are well established and patients would benefit from them. This study therefore aimed to document the magnitude of ED using SHIM score among MMT patients at MNH.

Patients and Methods

This was a descriptive cross sectional hospital based study that involved clients who are opiate addicts receiving MMT at MNH. The study was carried for a period of two months between July and August, 2019. The hospital is located in the commercial capital of Tanzania with a population of close to 5 million people. MNH was the first center to implement MMT therapy in the country and hence has a large number of substance abuse victims of all available centers. About 300 clients attend the MMT clinic daily. Ethical approval to conduct this study was obtained from Muhimbili University of Health and Allied

Sciences Senate Research and Publications Committee and permission to interview patients from MNH consultancy and research bureau.

The study recruited participants who were: abusing substance, on methadone, sexually active for at least six months, and provided informed consent to participate. SHIM tool was used to assess for ED and its severity. The SHIM is a shorted version of the International Index for Erectile Function (IIEF) with 5 items developed for use in diagnosing and grading severity of ED (11). The SHIM part of the questionnaire was translated into Swahili for use locally and field tested for validity. Provider administered questionnaire was used incorporating additional variables, social-demography of the participants and details of type of illicit drug used. Five clients were recruited per day with a sample of 151 clients being determined to be adequate to detect ED of 89% at power of 20% and type 1 error of 5%.

The collected data was checked for completeness and entered into Statistical Package Software for Social Scientists (SPSS) version 23 for subsequent analysis. Continuous variables were summarized in means with standard deviations while categorical variables were summarized into proportions and percentages. Association between ED and marijuana and alcohol use was determined, and statistically significant association was deemed to be present when p-value was <0.05. The SHIM score assessed the following parameters: confidence to get and keep an erection; how often were the erections hard enough for penetration; how often can maintain an erection following penetration; How difficult was it to maintain an erection to completion; How often the sexual intercourse attempt was satisfactory. Each item score from 0 to 5 or 1 to 5 depending on the Item. If the score is 21 or less, an ED was determined to be present. Clients were then classified into five categories based on SHIM total score: no ED (22–25), mild (17–21), mild to moderate (12–16), moderate (8–11), and severe ED (1–7). Results on individual items on the scale and then that of severity as determined by the total score are presented.

Results

A total of 151 clients were recruited for the study with majority being single, all clients were using cigarette and heroin, with other substance use being marijuana (81.5%) and Alcohol (38.4%). Most of the participants were under the age of 40 years. (**Table 1**)

Table 1: Demography, and substance use among clients attending MMT clinic at MNH in 2019, n=151

Variable	Frequency
Marital status	
Single	94 (62.3%)
Married	16 (10.6%)
Co habiting	35 (23.2%)
Divorced	6 (4.0%)
Substance Used	
Marijuana smoker	123 (81.5%)
Alcohol use	58 (38.4%)
Heroin	151 (100%)
Cigarettes	151 (100%)
Age group	
21 – 25	7 (4.6)
26 – 30	18 (11.9)
31 – 35	26 (17.2)
36 – 40	45 (29.8)
41 – 45	40 (26.5)
≥ 46	15 (9.9)

Only 4.6% of the clients were confident that they were able to get and keep an erection, a Likert scale of five items was used as shown in **Figure 1** below. Most of the clients reported varied degrees of ED with 30.5% reporting moderate confidence, 28.5% low confidence and 13.2% very low confidence of getting and maintaining an erection.

When assessing how often the erections were hard enough for penetration to take place, only 9.3% of the clients reported to almost always having hard erection. The remaining reported some degrees of problems with having hard erections during sexual intercourse with 2% reporting never experiencing a hard erection. On how often one was able to maintain an erection after penetration, 15.2% reported to be always able to maintain an erection while 28.5% and 4% reported to be able to maintain an erection only in less than half of the times or never able at all. On assessing self-reported satisfaction during sexual encounter, very few clients reported to be always satisfied as seen in 1.3%. The rest reported some dissatisfaction in which the largest category (37.7%) was those who were satisfied in less than half of the times in sexual encounter. (Figure 2)

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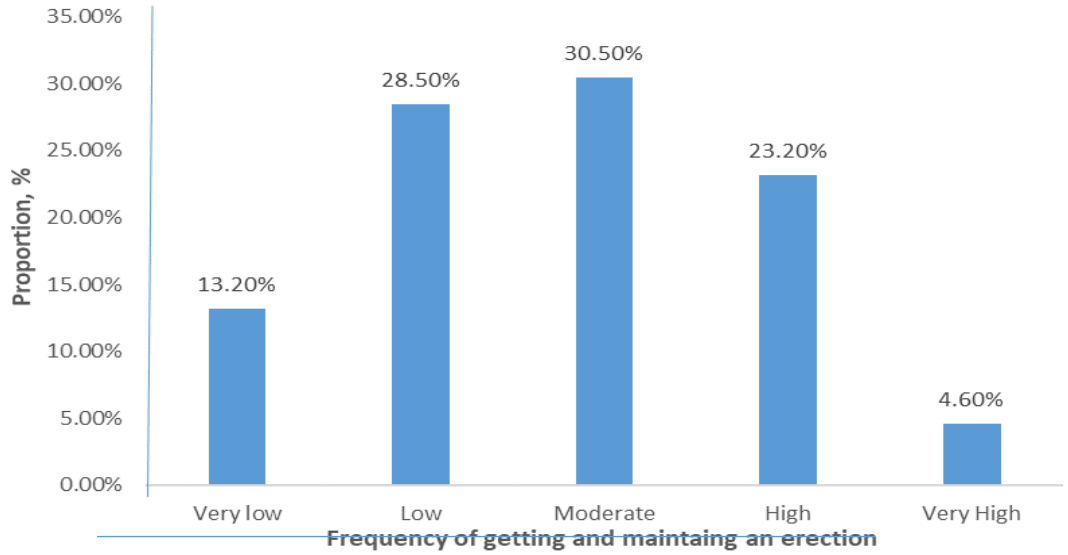

Figure 1: Bar chart showing confidence on ability to get and maintain an erection during sexual encounter among clients attending MMT clinic at MNH, 2019

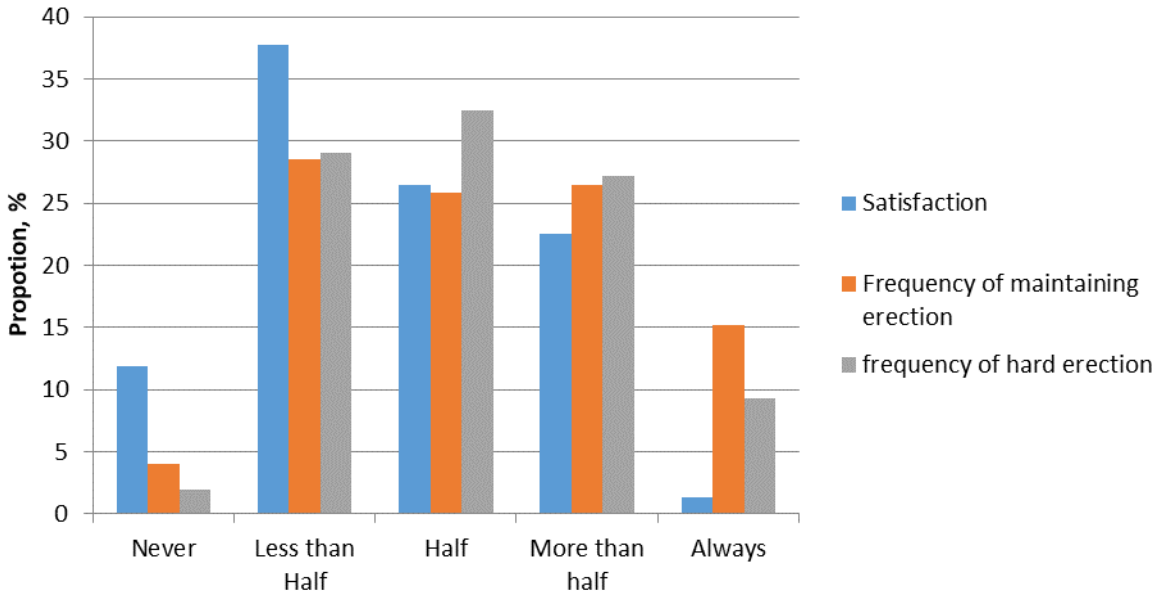

Figure 2: Bar chart showing satisfaction with erection, frequency of maintaining an erection and frequency of hard erection among MMT clients at MNH, 2019

About 20.5% found it not difficult to maintain an erection to completion of intercourse, while 53% found varied degrees of difficulty with maintaining an erection to the end of the intercourse as shown in **Figure 3.**

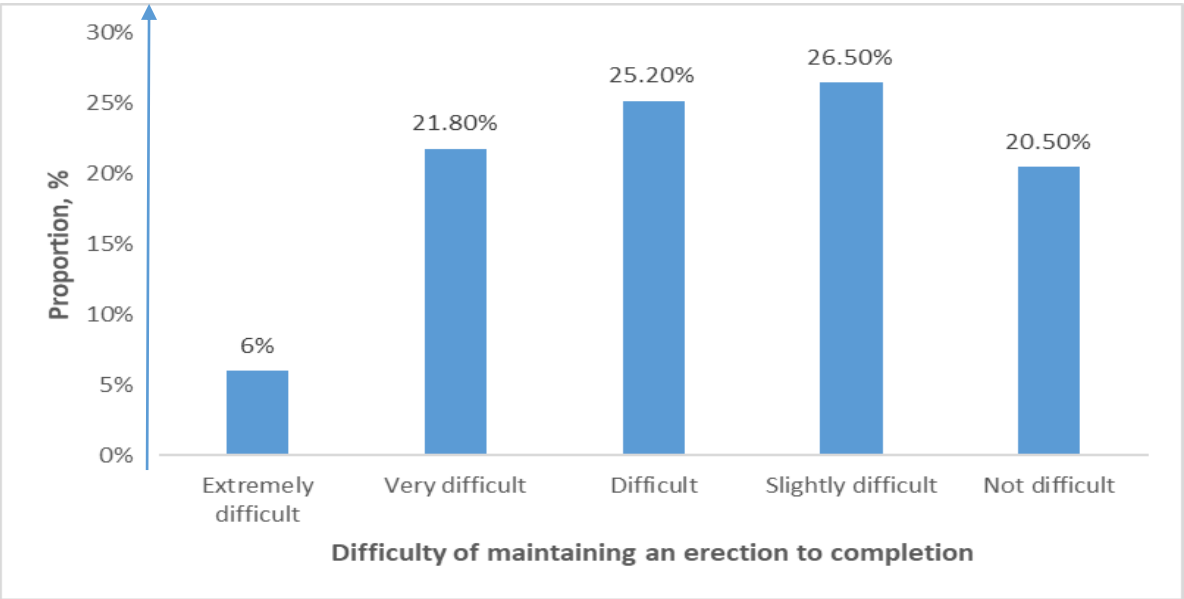

Figure 3: Bar chart Showing how difficult was it to maintain an erection to completion of intercourse among MMT clients at MNH, 2019

Figure 4 below shows sum of the above domains for grading severity of ED among MMT clients at MNH. Only 11.3% of the clients had no ED with 26.5% having moderate or severe forms of ED.

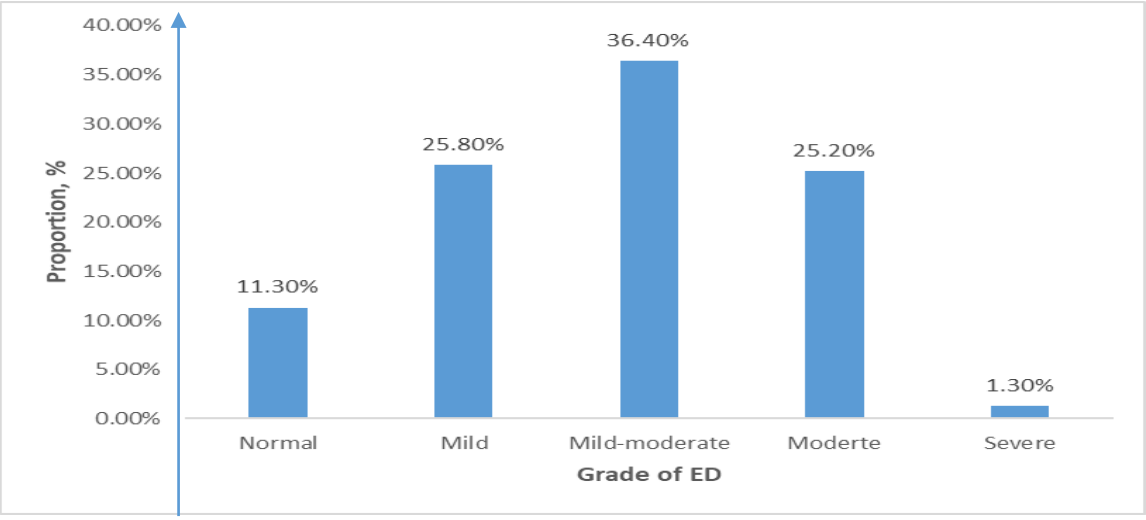

Figure 4: Bar chart showing sum of graded scores of ED among MMT clients attending clinics at MNH, 2019

Table 2 below shows the association between ED with marijuana and alcohol use only because all clients were using heroin and were on methadone therapy. Marijuana use was found to be associated with 13.8% less ED, a finding that was significant with p-value of 0.019. Proportion of clients with ED was higher among non-alcohol drinkers by about 10%, but the finding was not significant (p-value, 0.256).

Table 2: Showing association between alcohol and marijuana use to experiencing ED among MMT clients at MNH, 2019

MARIJUANA USE	No ED	ED	p-value
Marijuana use			
YES	17 (13.8%)	106 (86.2%)	**0.0001**
NO	0	28 (100%)	
Alcohol use			
YES	10 ((17.2)	48 (82.8)	**0.098**
NO	7 (7.5)	86 (92.5%)	

Discussion

This is the first study to assess ED among MMT clients attending MNH clinics since the introduction of methadone clinics in the country. The study was well powered to depict the magnitude of ED among this population of patients. Even though the majority reported to be single as their marital status, all of the studied clients reported to be in a sexual relationship during the preceding six months of the study. It is a well-recognized fact that sexual health is an important part of one's overall quality of life including physical and emotional well-being (12): ED would thus negatively impact on an individual's sexual health. Luckily, many different treatment options for ED exist. While this study highlights on the existence of ED among MMT clients, its use should be that of individualized assessment and treatment during continued clinic visits. This study did not include partners of the methadone users hence the full extent and impact on ED on sexual well-being and intimacy was not revealed. Furthermore, dose effect of both heroin and methadone use have not been taken into consideration.

This was the first time SHIM tool for assessing ED was used in Tanzania hence it can be taken as validation of the tool for future use. The variables in the tool were culturally acceptable and provided the intended responses. Clients did not feel intimidated by the questions, as was reflected by 100% response rate. SHIM tool should be administered to all MMT clients in order to address their sexual health during the long rehabilitation period. It is important to have base- line data of clients before initiation of MMT so as to understand if ED is due to methadone or heroin. Sexual Dysfunction (SD) might increase risk of voluntary dropout from treatment and promote illicit drug use during treatment since MMT has been shown to have strong sexual inhibition when compared to heroin (8).

We report varied grades of ED in this study affecting 9 in 10 of the MMT clients. This shows that ED might be a big public health problem among 7,000 plus MMT users in Tanzania and need to be addressed. Studies have found that SD prevented patients from reconstructing a normal intimate relationship, and affected stability of maintenance treatment (14). Sexual functioning is critical for improving the quality of life in patients in an opioid rehabilitation program. Individual patients concern for sexual function need to be assessed during therapy initiation. The use of Buprenorphine Maintenance Treatment should be considered for use among patients with sexual health concern or those demonstrating negative sexual health issues including ED (6). Thus, clinicians may consider the former when treating heroin dependents who have concerns about sexual function. How our clinicians would respond to ED among these patients is not known. There is a need to develop a clinical guide to deal with both SD itself and SD-related problems among MMT users in Tanzania.

Marijuana use has been shown to be associated with ED in up to half of its users from a study in Ghana (14). In our study, marijuana users were found to have significantly less ED when compared to non-users. This finding, if confirmed in other studies has the potential to promote continued marijuana use among this population of patients. Furthermore, this study investigated the influence of alcohol on ED whereby no association was noted. More studies are needed to quantify the alcohol consumption and standardize data collection tool to assess its full impact on ED. Since the study had higher rate of ED, well powered study is needed to investigate the potential impact of marijuana and alcohol on the same. Many studies have demonstrated that alcohol use is associated with some form of sexual dysfunction.

Limitation

This was a single centered study with small sample size obtained conveniently, they might not reflect the magnitude of the problem.

Conclusion

ED is a problem among MMT clients at MNH clinics. Only about 1 in 5 of the MMT clients reported to be experiencing normal erectile function during this study. Clinicians need to address ED among MMT clinics as a matter of concern since it has the potential of affecting quality of Life among substance users. Furthermore, characterization of the full extent and effect of ED among substance users in Tanzania should be explored.

Ethics statement

Ethical approval to conduct this study was obtained from Muhimbili University of Health and Allied Sciences Senate Research and Publications Committee and permission to interview patients from MNH consultancy and research bureau.

Competing interests

The authors declare no competing interests.

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We appreciate all health care providers, Clients and the authorities where the study was conducted.

List of Abbreviations

ED	Erectile Dysfunction
IIEF	International Index for Erectile Function
MMT	Methadone Maintenance Therapy
MNH	Muhimbili National Hospital
SPSS	Statistical Package for Social Scientists
SHIM	Sexual Health Inventory Score for Men

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