

Opioid Dependence And Methadone Maintenance Treatment (MMT) Programme In Nepal In Three Different Decades: An Exploratory/Comparative Study

Shrestha DM¹, Aich TK², Gautam K³, Bajracharya D⁴

1. Senior Consultant Psychiatrist, Blue Cross Hospital Pvt Ltd, Tripureswar, Kathmandu, Nepal 2. Professor & head, Department of Psychiatry, BRD Medical College, Gorakhpur, UP, India 3. Senior Medical Officer, Mental Hospital, Lalitpur, Nepal 4. Staff Nurse, Mental Hospital, Lalitpur, Nepal

E-mail *Corresponding author : dhрубacha@gmail.com

Abstract

Introduction: First Methadone Maintenance Programme (MMTP) in Nepal was started in the year 1994. This study was done to study and explore/compare findings of the present study with that of studies published in Nepal in the new millennium.

Material And Method: Study was conducted at the Mental Hospital, Lalitpur, Kathmandu, Nepal from 1994 to 2002. Data was collected for the initial 5 years from 1994 to 1998. These patients were followed up for the next five years till 2002. Data thus obtained are presented in a tabulated form, in terms of frequencies and percentages.

Results: A total of 204 patients were put on Methadone Maintenance Treatment Programme (MMTP) during the scheduled period. One-hundred-and-twenty-two (60%) of them were abusing buprenorphine. Severity of buprenorphine abuse was between 1-6 ampoules (2 ml per ampoule) per day. Approximately 40% (81) of them were sharing the injecting equipment. Seventy-seven (38%) of them had been in police custody in the past, for various reasons like theft, cheating, possessing, trafficking, violence and other antisocial behaviours. Forty-five percent (92) clients were retained at the end of 5 years. Sixty-nine family members (spouses, mothers, brothers) from these 92 regular methadone clients were interviewed. Eighty-six percent (79) of the interviewed family members reported significant improvement in clients' health. Eighty-one percent (75) of the family members reported significant improvement among the methadone users' family in financial responsibilities and interest in work. Overall, MMTP was found to have reduced the amount of illicit drug abuse significantly in these patients. These results are compared with the data of the subsequent published data on MMTP from Nepal in the new millennium.

Conclusion: Though the present study data may appear to be of historical value, we are presenting these data, in the light of the findings of the newer studies published of late from Nepal. Till date, our study remained the largest MMT Programme in Nepal, in terms of number of patients studied, number of years of study and number of years of follow up of these patients.

Keywords: Methadone Maintenance, Nepal, Oral Substitution

INTRODUCTION

Drug Abuse Scenario in Nepal from 1960s to 1990s: In Nepal by mid-seventies cases of drug dependency on opiates, especially heroin began to appear. Both official and unofficial estimates indicate that from virtually no cases in 1976, there were over 10,000 and even as high as 20,000 heroin addicts a decade later, concentrated in the Kathmandu Valley. Drug abuse was mostly reported in young adults between the ages of 15-30 years of age¹⁻³. Heroin

(Brown sugar) was the most important drug of abuse reported. Mode of administration was mostly through smoking (71-78 % cases) and intravenous use in 22-29 % of cases³⁻⁵.

Drug Abuse Scenario in 1990s: Buprenorphine Injection was introduced in the year 1989. Mainly young adults between the age of 15-30 years were reported to abuse buprenorphine⁶⁻⁸. Types of drugs that were abused were Buprenorphine (65-90%), Heroin (15%), Nitrazepam, combination of codeine and

ephedrine, combination of alcohol and nitrazepam, and sporadic abuse of Inhalants⁷.

Mode of administration of drugs was through smoking (4-40 % cases) and Intravenous abuse in 60-75 % cases. About 40-65 % of IDUs were found to be sharing their Injecting equipment^{3,7,9}.

Following WHO SEARO's recommendation received in the year 1992 and approval from Ministry of Health, and Department of Drug Administration, HMG Nepal, and permission received from the Ministry of Home Affairs, Narcotic Control Division, HMG, Nepal, Methadone Maintenance Treatment Programme (MMTP) was introduced in the year 1994 at the Mental Hospital, Lalitpur, Nepal. At that time MMT programme was the only one of its kind, not only in Nepal but also for the entire SAARC countries.

Drug Abuse Scenario in the new millennium:

There are 92,436 people who use drugs (PUDs) in Nepal as per report published by Central Bureau of Statistics (2018). MMTP programme that was started in 1994, was stopped in 2002 due to some administrative problems¹⁰⁻¹².

In 2006, United Nations office on Drugs & Crime (UNODC) in cooperation with Nepal Government restarted MMTP with 3 sites in Kathmandu, Lalitpur and Pokhara. MMTP supported by UNODC phased-out in 2010, therefore, since 2011 to date 'Save the Children' (SC) under the 'Global Fund HIV & AIDS Program' has been supporting MMTP in Nepal¹⁰⁻¹⁴. Currently, in Nepal there are 14 MMT programme sites in total, across the country, with an estimated 2500 PUDs enrolled on the program¹⁰.

First author (DMS) is credited to start first MMT programme in Nepal in the year 1994. His experience was shared through various publications and presentations in the past^{1,9,15,16}. Present paper is a comparative/exploratory study of research papers published/shared over various public domain, on Brown sugar/buprenorphine abuse and MMT Programme in Nepal, ran over a period of last three decades.

MATERIAL AND METHOD

Mental Hospital, Lalitpur, Kathmandu Valley was the first centre for MMT programme in Nepal. The study started in the year 1994 and

continued till 1998. These clients were followed up till 2002.

Detailed demographic data, history of drug abuse, history of criminality, the daily amount of money spent on drugs, previous efforts for detoxification was recorded for all the clients recruited in the programme. Their family members were also interviewed as far as possible to correlate with the history. Detailed physical cum psychiatric evaluation was done for every client enrolled for the programme. Serological Status for HIV, HBV and HCV was done for many clients before initiating on methadone, since it was not mandatory. HIV sero-positive and Intravenous drug users were given the preference for methadone.

The dose of methadone was adjusted on clinical judgment made by the principal investigator on the dose of Heroin or Buprenorphine the drug user was using before being put on Methadone. Initially in most cases 30-40 mg/day was provided in the first 24 hours, but if the dose was reported to be inadequate in the following day, depending on the symptoms of withdrawal, the dose was increased by 10 mg to make it more user friendly. It was further increased on later days, if necessary. Urine test for other opiates was not carried out and it was not mandatory. Also, it was not available at that time.

There was take-home service facility also for a few selected clients, e.g., clients during hospital admission for treatment of other illness, clients' inability to come to clinic during mourning period for death in the family, accidents, during childbirth and patients in maternity hospital, having to travel for a few days in the course of the client's job as trekker's guide and other genuine reasons. All possible precautionary measures were observed to stop possible diversion of Methadone. At times the family members were encouraged to pick up the take home methadone for the methadone users. In few cases the drug distributing nurse would visit the client in other hospital to confirm their admission. For foreign nationals visiting Nepal and needing methadone in Kathmandu, they had to provide the latest valid documents of them being on methadone from the clinics of their countries of origin, their daily dose of Methadone, their intended length of stay in Nepal, their duration of travel outside of

Kathmandu for sightseeing and trekking for supply of take-home doses. Fortunately, we did not receive any bad news of overdose accidents or deaths from them.

An identity card of Methadone users was issued to each client to prevent police harassment and facilitate their movements easy, especially, during curfews during the public agitation. To find out the impact of methadone, a behaviour inventory was prepared. It focussed on six domains of behaviour. These were (i) demand of money from family to procure drugs, (ii) Social responsibility toward family members, (iii) Positive changes in behaviour, (iv) general health condition, (v) retention in occupation or job and (vi) attitude of family members toward methadone.

As it was the first clinic in this region, it had a very simple and humble beginning. Methadone was provided in a very rudimentary form. It was procured in tablet form as there was a problem for storing liquid in the hospital setting. Each tablet was in 40 mg circular white form dissolving in water. To make the dose adjustment different from 40 mg tablet, tablet had to be broken, then divided into different dosage form, grounded finely in mortar and pestle or over a piece of paper and dissolved in a small amount of water in a beaker, in front of the client, before given to drink by the dispensing nurse. It was a cumbersome job, yet carried out by the nurse with dedication and patience.

Methadone users were recruited for the study from 1994 till 1998, for a period of 5 years. They were followed up till 2002, when the programme got discontinued due to some administrative and other reasons. Data thus obtained was tabulated in a simple frequency and percentage table.

Data obtained from this study is compared with that of other studies, that has been published in Nepal in subsequent years, over a period of next two decades.

RESULT

Table 1: Year-wise registration of clients: N=204 (1994-98)

Year	Frequency	Percent
1994	69	33.8
1995	29	14.2
1996	5	2.4
1997	31	15.2
1998	70	34.4
Total	204	100

Table 2: Socio-demographic and clinical variables: (N=204)

Variable	Frequency	Percent
Patient distribution		
Kathmandu District	92	45.1
Lalitpur District	105	51.5
Foreign Nationals	7	3.4
Age group		
15-25 years	69	34
26-35 years	110	54
≥ 36 years	25	12
Marital status		
Married	129	63
Single	75	37
Educational Status		
Illiterate	9	4
Schooling	152	75
Campus	43	21
Economic Status		
High	5	2
Medium	105	52
Low	94	46
Family Type		
Nuclear	60	29
Joint	138	68
Extended	6	3
History of Addiction in other family members		
Present	51	25
Absent	153	75

Amongst married clients (129), one hundred-twelve clients (86%) had 1 to 4 children and rest 17 (14%) of them were childless. Alcohol Dependence in father was found to be in 11 (5.4%) patients. Fifteen spouses, 25 brothers and one son admitted to be abusing opiates, at the time of the study period.

Table 3: Clinical variables: (N=204)

Variable	Frequency	Percentage	
Duration of Drug Use			
1-3 Years	10	5	
4-6 Years	59	29	
7-10Years	90	44	
11-15 Years	25	12	
16 years and more	20	10	
Marital status:			
Married	128	63%	
Unmarried/separated	76	37%	
Features of Drug Users before being on MMT			
Buprenorphine abuse	122	59.9	
Heroin abuse	82	40.1	
Methadone Dose (in mg)			
Nepalese	40-60		
Foreign Nationals	80-100		
Client retention (at the end of 5 years)			
Retained	92	45	
Dropped out	112	55	
Reasons for client drop-out	<u>out of 112</u>		<u>% of 112</u>
Foreign Nationals	10	4.9	9
Expired	7	3.4	6
Stopped by administration	5	2.4	5
Left the country	6	2.9	5
Drug Free	2	0.9	1
No Information	82	39.4	74
HIV testing			
Done	111	54	
Not done	93	46	
HIV Positive cases	46 among 111 patients	42	

Amount of heroin use was varying between 1-5 gm in 24 hrs. Buprenorphine abuse was between 1-6 ampoules (2 ml per ampoule) per day. Eighty-one (40%) of them were sharing the injecting equipment. About 38% of them had been in police custody in the past, for various reasons like theft, cheating, possessing, trafficking, violence and antisocial behaviour. Duration in the police custody ranged from a few days to couple of years. The frequency in police custody ranged from 1-6 times.

It was observed that foreign nationals needed higher Methadone doses than local clients. In some foreigners the dose exceeded more than 80 mgs, whereas for Nepalese clients 40 mg was the average optimum dose. This may be due to high dose and better purity of heroin used in other countries than in Nepal.

Ninety-two (45%) clients were retained at the end of 5 Years. Rest one-hundred-and-twelve (55%) clients dropped out for different reasons. Out of 70 Methadone clients registered in year 1998, thirty-six (51%) of them were found to be HIV Positive.

Sixty-nine family members (spouses, mothers, brothers) from these 92 regular methadone clients were interviewed to find out the changes in the behaviour of methadone users. Eighty-six percent of the interviewed family members reported significant improvement in clients' health. Thirty-eight percent of the clients had been in the custody before being included in MMT programme; but, only 3% were in custody while being on methadone. Eighty-one percent of the family members reported significant improvement among the methadone users' family and financial responsibilities and interest in work. Eighty-eight percent of the family members reported that methadone users were not using any other additional drugs but 12% of them were using substances like alcohol and nitrazepam. Fifty methadone clients who tested negative for HIV prior to start of MMT regiment, were re-tested after one year. Only 2 clients turned HIV positive during this period.

**DISCUSSION:
Opioid Dependence and Methadone Maintenance Treatment Programme (MMTP) in 1990s:**

Pattern of various drugs of abuse in Nepal, esp., in Kathmandu valley has been discussed in detail in the past by various authors and published documents from Ministry of Health, Government of Nepal^{1,3,7,17}. HIV sero-positivity amongst injection drug users (IDUs) was reported to be low during these initial years (1.6% in 1991)^{4,8}.

Methadone Maintenance Treatment (MMT) programme run by the Mental Hospital, Lalitpur was the first of its kind, not only in Nepal but also in the entire South-Asian countries^{10,14,16}. The main reasons for initiating Methadone were based on the Harm Reduction principles and they were as follows: (i) to reduce the rapidly increasing rate of change in the mode of using from smoking to Intravenous route after the introduction of Buprenorphine injections; (ii) to reduce the alarmingly

Increasing incidence of spread of HIV and other blood borne diseases among drug users as they were sharing the injecting equipment; (iii) to reduce increasing criminality among drug users; (iv) to alleviate the community and family suffering due to frequent relapses of the treated drug users after many failed detoxification attempts at home and at the Therapeutic Community Centres.

The Methadone clinic used to remain open from 9.00 AM to 2.00 PM, for 365 days in a year. There were no clinic holidays. The retention rate was found to be similar in other countries also as it was 'Low Threshold' and 'Low Intervention Programme'. The dosage was adjusted after understanding and consultation between the psychiatrist and the client. No penalty for discontinuation or for being infrequent and occasional irregularity. Methadone was not given free and a nominal twenty Nepali Rupees was charged for a 40 mg dose. Our clients had no problem to pay for this nominal amount, because each clients were spending on an average four-hundred Nepalese Rupee per day for procuring illegal drugs prior to enrolling themselves into MMT programme¹⁶.

Sixty-nine family members (spouses, mothers, brothers) from our 92 regular methadone clients were interviewed to find out the changes in behaviour of methadone users. Few significant changes in our clients' behaviour were observed by the family members, while they were on Methadone treatment. The areas of improvement noticed mainly were holding on to occupation and Job, reduced demand of money from the family members, reduction in criminal behaviour, improvement in their general health condition and an increased sense of family responsibilities.

First MMT programme was discontinued in the year 2002. In various articles, during subsequent years, it has been mentioned that this programme was stopped due to technical problems. Those problems were never discussed with the first author (DMS) by anyone in the past. Being the sole first MMT programme runner, first author (DMS) would like to narrate following reasons behind stoppage of this programme.

1. The programme was doing well even though it was an one man show. However, it could not

be institutionalized properly. Very minimal staff was involved so as to reduce the possibility of diversion and misdistribution of methadone.

2. Impact evaluation of methadone could not be done in time and thus the report could not be presented to concerned Ministry for getting approval for extension of the programme. There was a delay and confusion in forming the body to evaluate the programme so as to make it bias free but at the end, the principal author (DMS) himself had to complete the evaluation.

3. Oral Buprenorphine was being promoted at that time as the alternative opioid substitution therapy (OST); hence Methadone was not being brought into limelight. Even NGOs having Syringe and Needle Exchange programme were not in favour of MMTP.

4. Ex-drug users running so-called Rehabilitation Centres (Custodial Therapeutic Community Centres or Recovery Centres) were opposed to MMT as it was becoming popular and it was posing a threat to their source of income. Those rehabilitation centres were charging exorbitant amounts of money from the drug addicts and their families. Moreover, there were very high rate of relapses, even after a long stay in the residential rehab centres. There was no system of monitoring those centres. They were mushrooming in Kathmandu valley and slowly opening outside the valley also.

5. Drug Users who could not be registered for Methadone, tried to spread false rumours like methadone to be more harmful and being a poisonous drug. Some drug users even brought out fake tablets looking like methadone and sold them it in market, thus, in essence, tried to make the programme a failure.

6. Group of users who were terminated from the programme because of their anti-social activities like selling of drugs inside the methadone premises, irregularly irregular methadone users and frequent drop-outs, picking up fights, etc., were found spreading false anti-MMT messages.

7. Thus, overall attempts were made to create bad image about it and discourage clients to go for methadone. Some NGOs even came out in local magazines against methadone.

8. The other cause was the different perception and attitude towards methadone among the

believers in complete abstinence theory and the harm reduction philosophy.

A cumulative effect of all those issues lead to closure of first MMTP in Nepal in the year 2002. Nurse DB served the methadone clinic continuously for 7 years, not taking even a single day off. She was the solo person involved in methadone distribution. She used to live close-by outside the hospital and hence she was able to come every-day. She used to carry methadone tablet containing bottles in her uniform apron pocket (she became popular as the 'methadone nurse').

Opioid Dependence and Methadone Maintenance Treatment Programme (MMTP) in 2001-2010:

During first decade of the new millennium we have seen the discontinuation of existing MMT programme by 2002. Few studies on opioid abusers were reported during this period^{18,19}.

In a socio-psychological study among 393 male injectable drug users in Kathmandu valley, it was found that most frequently used psychoactive substance was injection Buprenorphine, followed by mixture of various substances (opiates, benzodiazepines, antihistamines) and Diacetyl morphine (Brown sugar)¹⁸.

In another study on opioid abusers from the border town Bhairahawa, most characteristic opioid abuse pattern was found to be abuse of brown sugar through inhalation¹⁹. Seventy-six opioid abusers, who were admitted over a period of one year, were included in the study. A total of 32 (42.1%) among them had a history of injectable drug abuse (IDU). Their lifetime diagnosis revealed a polysubstance abuse pattern. There were high instances of injection-related side effects in the form of the presence of thrombophlebitis, HIV positivity, and clinical AIDS^{19,20}.

In 2006, United Nations office on Drugs and Crime (UNODC) in cooperation with Nepal Government restarted MMTP in 3 sites at Kathmandu, Lalitpur and Pokhara^{10,14}. Pressure from drug user groups had also helped its re-introduction. Interestingly, these developments have taken place during a period of political instability in Nepal, with the help of strong advocacy from multiple stakeholders. As we mentioned above this time also MMT programme had to face resistance from those

people running drug treatment centres. Coverage of MMT was low among high-risk injecting and sexual behaviour patients. The finance for MMT was largely from the external donors and these donations became scarce with the advent of global economic problems¹⁴. MMTP supported by UNODC phased-out in the year 2010.

Opioid Dependence and Methadone Maintenance Treatment Programme (MMTP) in 2011-2020:

According to the 'Survey Report on Current Hard Drug Users in Nepal-2069' (English era-2012-13) done by Government of Nepal, Ministry of Home Affairs, there were altogether 91,534 (Male - 85204, Female-6330) current drug users in 2012-13, which is nearly a double of 46,309 in 2006-07¹². Mean age was 25.1 years and mean age of first drug intake was 17.2 years. Types of drug use were (multiple Responses) cannabis users 90.5%, opiates users 93.5%, tranquilizers 83.5%, inhalants 12.7%, hallucinogens 8.7%, stimulant 5.2% and other drugs 1.2%¹². The highest number of the drug users were found in Kathmandu valley (36,998) followed by Sunsari (7,407) and Kaski (6,917). Especially growing number of youth and children were found to be getting involved in drug addiction^{12,14}. About 70,390 drug users were below the age of 30. Among the total drug users, 57% (52,174) were IDUs and among them 13% shared needles with someone else¹². The use of intravenous opioid is gradually increasing and so is the risk of transmitting blood borne illnesses like HIV, Hepatitis B and C as well as their participation in criminal activities¹².

Since 2011 to the date 'Save the Children' (SC) under the 'Global Fund HIV & AIDS Program' has been supporting MMTP in Nepal. MMTP is primarily operated through 2 units; (1) Medical Unit (MU)-units managed by doctors/nurses to dispense methadone and provide medical care (2) Social Support Unit (SSU)-units managed by drug users themselves to provide counselling and social supports to MMTP patients¹⁰.

A qualitative assessment of MMT programme was carried out in two out of five MMTP programme that were running in Kathmandu Valley in the year 2011. Five sessions of Focussed Group Discussion (FGD) with the MMT clients were carried out. About 12 to 14

clients participated in each session and all the FGDs were conducted by an experienced epidemiologist. Thus, a total of 60-70 clients took part in the study. This study revealed that despite many lacunae, the participants found the programme useful in terms of developing good relation with family members, decreasing the necessity of money, being able to attend social functions, health and economic benefits, time saving, easily getting job¹¹.

Sharma et al., (2016) conducted a survey to determine the rate of adherence to and factors associated with compliance with a methadone maintenance treatment program (MMTP) among injecting drug users in Nepal. They conducted face-to-face structured interviews with 165 methadone treatment patients aged 20-54 years during April 2015²¹. Respondents without a previous history of relapse were 2.7 times more likely to adhere to the MMTP than those with a history of relapse. Clients with a good knowledge of the MMTP are 9.4 times more likely to adhere to the MMTP²¹.

In a recent study on factors Influencing client retention in five different Methadone Maintenance Treatment Clinics in the Kathmandu valley Sapkota et al., (2019) recruited a total of 84 clients. These clients were regularly followed up and retention rate was calculated at the end of 6 months. Sixty-three of them (75%) were retained in the MMT programme. Factors associated with the retention included higher dosage of methadone ($p=0.015$)²².

Previous systematic reviews and meta-analysis around the globe have found varying percentage of retention in MMT program from 40% to 90% over various period of time^{23,24}. Similarly, patients' characteristics such as age and sex, employment status, methadone dose, criminal history, society and peer support have been identified in various studies done in the past as the crucial factors in predicting the likelihood of continuation of treatment for longer duration²⁵⁻²⁸.

In 2014 the Ministry of Home Affairs approved the use of buprenorphine as substitution therapy under Harm Reduction Program²⁹. In a study on adherence to Buprenorphine Maintenance Treatment Program in Western Nepal, Vaidya et al., (2019) assessed the 1-year

efficacy of buprenorphine and reasons for dropout. A total of 61 clients were enrolled, but 75% of the enrolled clients dropped out of the programme in 1-year period³⁰.

Currently there are 14 MMTP sites in total across the country with an estimated 2500 PUDs enrolled on the program. All MMTP sites have SSU managed by drug users themselves. SSUs have a canteen within their premises which are run by MMTP patients themselves thereby supporting their livelihoods. SSU provides mechanical and mobile maintenance trainings to patients thus many patients have started their own auto-mobile workshops. Whenever MMTP patients are arrested by police because of their past drug use history, SSUs tried to rescue these users and even provide methadone to patients while in custody³⁰. A detailed report of MMTP from these sites is awaited.

CONCLUSION:

Principal author (DMS) has lived through nineteen-sixties (Hippie era), when the whole scenario started in Kathmandu, Nepal, probably along with Varanasi in India, till date. First MMT programme in Nepal was carried out by him (DMS) at the Mental Hospital, Lalitpur, Kathmandu in the year 1994 with great risk, supported only by the then WHO Director of Mental Health at SEARO, New Delhi and Ministry of Home affairs, Government of Nepal with ambivalent attitude. This paper presents the findings of the study of 204 patients, who were put on Methadone Maintenance Treatment (MMT) programme over a period from 1994 to 1998. These patients were followed up for the next five years till the year 2002, when the programme got discontinued. Principal author (DMS) presented the findings of this study at 'Asian Workshop on Rapid Assessment and Response on psychoactive substance use and sexual risk behaviour (SEX-RAR)' conducted by the Sahai Trust, Chennai, India in the year 2002¹⁶.

Out of a total of 204 clients, 122 (60%) of them were abusing buprenorphine. Key findings of the present study were the following: (i) severity of buprenorphine abuse was between 1-6 ampules (2 ml per ampule) per day; (ii) approximately 40% (81) of them were sharing the injecting equipment; (iii) about 38% of them

had been in police custody in the past, for various reasons like theft, cheating, possessing, trafficking, violence and antisocial behaviour; (iv) foreign nationals needed higher Methadone doses than local clients; (v) forty-five percent (92) of the clients were retained at the end of 5 Years and the rest one-hundred-and-twelve (55%) clients dropped out due to various reasons.

Spouses of our regular methadone clients reported significant changes in the behaviour of these methadone users. Eighty-six percent of the interviewed family members reported significant improvement in clients' health. Eighty-one percent of the family members reported significant improvement among the methadone users' family and financial responsibilities and interest in work.

Though the data of the present study may appear to be of historical value at present, we thought of presenting these data, in the light of findings of the newer studies published of late from Nepal. Our study till date remained the largest MMT Programme in Nepal, in terms of number of patients studied, number of years of study and number of years of follow up of these patients.

Finally, our study found that most of the Methadone clients who had some kind of good family support and were already on some kind of income generating activities had shown significant improvement in their social and drug use behaviour. MMTP was found to have reduced the amount of illicit drug abuse significantly in these patients.

ACKNOWLEDGEMENT: Principal author (DMS) wished to extend his sincere thanks and gratitude to (Late) Dr. Helmut Sell, Dept of Mental Health, WHO, SEARO, New Delhi, whose encouragement and support through availing books on Methadone and convincing WHO and other UN agencies to get methadone in Nepal from Switzerland made it possible to carry out the study in Nepal. Principal investigator also wished to extend thanks to all the persons in the Ministry of Home, Narcotic Control Division and Ministry of Health, Department of Drug Administration, Government of Nepal respectively for their sincere cooperation and granting permission to carry out the study at the Mental Hospital.

Sincere thanks are also extended to all the methadone clients and their family members, who co-operated in the evaluation of the outcome of the study.

FUNDING: None

CONFLICT OF INTEREST: None

REFERENCES:

1. Shrestha DM. A Brief Analysis of Young Drug Addicts. *Jana ChikitsalayaSmarika*1987; 5:19-23.
2. Subba C. *Treatment of Drug Dependence in Nepal*. Nawa Jeevan Ashram, Management Board, Lalitpur, Nepal 1990.
3. Jutkowitz JM, Spielmann H, Koehler U, et al. Drug use in Nepal: the view from the street. *Substance use misuse* 1997; 32 (7&8): 987-1004.
4. Nepal MK, Regmi SK. A Review of Heroin Dependents in Tribhuvan University Teaching Hospital. In: *Souvenir, German-Nepalese Neurosciences, Mental Health & Orthopaedics, Bir Hosp. Kathmandu, Nepal* 1991.
5. Shrestha NM. Alcohol and drug abuse in Nepal. *Br J Addict* 1992; 87 (9): 1241-48.
6. Bhandari B, Subba C. *Urban Drug Users of Nepal*. Drug Abuse Prevention Assoc. Nepal, Kathmandu 1992.
7. HMG, Ministry of Home Affairs/UNDCP. *Rapid Assessment Survey of drug Addicts of Five Development Regions, Nepal*. New Era 1996; 90.
8. Karki BB. RAR Survey among drug users in Nepal. Paper presented at the "The Harm Reduction Planning Workshop". Kathmandu, Nepal June 11; 1999.
9. Shrestha DM, Shrestha NM, Gautam K. Methadone Treatment program in Nepal, A One-year Experience, *J Nepal Med Assoc* 1995; 33-46.
10. Ranjit T. Methadone maintenance treatment program (MMTP) in Nepal; role of user-led organizations in engaging and empowering MMTP patients. National Users Network of Nepal (NUNN). <https://az659834.vo.msecnd.net/eventsairaeuprod/production-ashm-public/27b8dc6ea42644ad9a017e4df02d6096/> downloaded on 27-09-2020
11. Singh PM, Shrestha DM and Bhandari GP. A qualitative assessment of Methadone Maintenance Therapy Program in Nepal: Evidence to scaling up at National level. *Nepal Med Coll J* 2014; 16(1): 17-9. <https://pubmed.ncbi.nlm.nih.gov/25799804/> Downloaded on 27-09-2020
12. Government of Nepal. *Survey report on current hard drug users in Nepal-2069*. Kathmandu: Central Bureau of Statistics, National Planning Commission Secretariat; Ministry of Home Affairs; Government of Nepal 2013.

13. Dangol K, Chapagain M, Tulachan P. A Study on Treatment Compliance among Methadone Clients in MMTP Program TUTH. Nepal J Nobel Med College. 2013;2(2):50-56.
<https://doi.org/10.3126/jonmc.v2i2.8806>Downloaded on 27-09-2020
14. Ambekar A, Rao R, Pun A, et al. The trajectory of methadone maintenance treatment in Nepal. *Int J Drug Policy*. 2013; 24(6):e57-60.
15. Shrestha DM. Drug Abuse in Nepal. *J Nepal Med. Assoc* 1986; 24:79 (2).
16. Shrestha DM. Methadone maintenance therapy in Nepal. Abstract: of the paper presented at Asian Workshop on Rapid Assessment and Response on psychoactive substance use and sexual risk behaviour (SEX-RAR). Sahai Trust, Chennai, India; WHO, Geneva February 18-21; 2002.
17. Bhandari B, Subba C. *Students and Drugs in Nepal*. Kathmandu: Drug Abuse Prevention Association, Nepal 1992.
18. Ojha SP, Pokhrel P, Acharya RP, et al. Sociopsychological study among injectable drug users in Kathmandu valley. *J Nepal Med Assoc* 2002; 41:235-40.
19. Aich TK, Dhungana M, Khanal R. Pattern of buprenorphine abuse amongst opioid abusers in Nepal. *Indian J Psychiatry* 2010; 52 (3):250-3.
20. Aich TK, Saha I, Ram D, et al. A Comparative Study On 136 Opioid Abusers in India and Nepal. *J Psychiatrists' Assoc Nepal* 2013; 2(2): 11-17.
21. Sharma V, Chamroonswasdi K, Srisorrachatr S. Rate of adherence to and factors associated with methadone maintenance treatment program (MMTP) compliance among injecting drug use patients in Nepal. *Southeast Asian J Trop Med Public Health* 2016; 47(2):287-98.
<https://pubmed.ncbi.nlm.nih.gov/27244967/>
Downloaded on 27-09-2020
22. Sapkota B, Tulachan P, Ojha SP, et al. Factors Influencing Client Retention in Methadone Maintenance Treatment Clinics in the Kathmandu Valley. *J Psychiatrists' Assoc Nepal* 2019; 8:2, 9-14.
23. D'Ippoliti D, Davoli M, Perucci CA, et al. Retention in treatment of heroin users in Italy: the role of treatment type and of methadone maintenance dosage. *Drug Alcohol Dependence* 1998;52(2):167-71.
24. Timko C, Schultz NR, Cucciare MA, et al. Retention in medication-assisted treatment for opiate dependence: A systematic review. *J Addict Dis*. 2016;35(1):22-35.
25. Kelly SM, O'Grady KE, Mitchell SG, et al. Predictors of methadone treatment retention from a multi-site study: A survival analysis. *Drug Alcohol Dependence*. 2011;117(2):170-5.
26. Strike CJ, Gnam W, Urbanoski K, et al. Factors predicting 2-year retention in methadone maintenance treatment for opioid dependence. *Addict Behaviours* 2005;30(5):1025-8.
27. Schiff M, Levit S, Moreno RC. Retention and illicit drug use among methadone patients in Israel: A gender comparison. *Addict Behaviours* 2007;32(10):2108-19.
28. Booth RE, Corsi KF, Mikulich-Gilbertson SK. Factors associated with methadone maintenance treatment retention among street-recruited injection drug users. *Drug Alcohol Dependence* 2004;74(2):177-85.
29. Birdsall K. Opioid substitution therapy in Nepal. Learnings from building a national programme A publication in the German Health Practice Collection.
http://health.bmz.de/ghpc/case-studies/Opioid_substitution_therapy_in_Nepal/index.html.
Down-loaded on 02-11-2020
30. Vaidya L, Sharma R, Acharya L, et al. Adherence to Buprenorphine Maintenance Treatment Program in Western Nepal. *Medical Journal of Pokhara Academy of Health Sciences* 2019; 2,2
<https://mjpahs.edu.np/index.php/mjpahs/article/view/86>
downloaded on 12-10-2020
Down-loaded on 27-09-2020