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Original Article

An Analysis of Treatment Preferences of Patients With Opioid Use Disorders: Findings From A Tertiary Drug Dependence Treatment Center in India

Shalini Singh[1], Newfight Seth[1], Manmeet Kaur Brar[1], Adit Verma[2], Siddharth Sarkar[1*], Anju Dhawan[1]

[1]National Drug Dependence Treatment Centre, All India Institute of Medical Sciences, New Delhi, India
[2]Department of Psychiatry, All India Institute of Medical Sciences, New Delhi, India

***Corresponding Author:** Siddharth Sarkar, Email: sidsarkar22@gmail.com

Abstract

Background: In this study, we examined the patient preferences for the treatment of opioid use disorders, the factors determining these preferences, and the barriers faced while seeking treatment for opioid use disorders.

Methods: The participants were recruited from both outpatient and inpatient services of a tertiary care centre, and the consenting adults seeking treatment for opioid use disorder were included through purposive sampling. Information on all treatment modalities for opioid use disorders was presented through a video, followed by clarifications. The options included naltrexone (oral, depot, and implant), buprenorphine (sublingual and injection), methadone, tramadol, counselling/psychotherapy, long-term residential treatment, Narcotics Anonymous meetings, and no treatment. Semi-structured questionnaires were used to collect responses, and descriptive statistics were used for data analysis.

Findings: Participants ($n=150$) had a median age of 31 years, and were all male. Most (90%) were visiting the treatment centre from other districts, with a median travel time of two hours to reach the centre. Sublingual buprenorphine (41.3%) was the preferred option, followed by oral tramadol (33.3%). The treatment outcomes (77.3%), followed by logistic reasons (14.7%), were the major determining factors for choosing a treatment option. Frequent dispensing schedules (54%) and unavailability of medication near their residence (25.3%) were the major barriers to seeking long-term care.

Conclusion: There was a greater preference for oral opioid agonist medication over all other formulations. A wider availability of medications for opioid agonist maintenance treatment could improve treatment-seeking rates. Further research on treatment preference could include diverse patient groups, caregivers, and treatment providers.

Keywords: Opioid-related disorders, Patient preference, Treatment outcome, Long-term care, Buprenorphine

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Introduction

Opioid use disorder has been a global concern, and opioid users comprise a significant proportion of treatment seekers in India.[1,2] A range of treatment options is available for helping patients with opioid use disorders.[3] These include, but are not limited to, sublingual buprenorphine, oral methadone, oral naltrexone, injectable buprenorphine, implant buprenorphine, implant and depot naltrexone, oral tramadol, etc. The treatment options vary in their efficacy and profile of symptom control, including the management of withdrawal symptoms. The pharmacological treatment options exist alongside psychosocial interventions, which aim to address vulnerable situations and reduce the risk of relapse. Narcotics Anonymous is yet another self-help organization that aims to aid individuals with opioid use disorder remain abstinent and make positive changes in their lives.[4]

Treatment engagement for patients with opioid use disorders is influenced by their treatment preferences and whether such preferences are given due value.[5] Several studies have examined the treatment preferences of individuals with opioid use disorders. Individuals with opioid use disorders have been assessed for their preferred route of buprenorphine administration, with oral/sublingual tablets being the most commonly preferred choice, followed by injections and implants.[6] Among patients maintained on methadone or heroin-assisted treatment in the Netherlands, some interest has been reported in extended-release naltrexone.[7] A study from the USA reported that among individuals with past-year opioid use disorder, almost half of the respondents were not willing to try injectable and implantable medications, while only a minority were willing to use these medications through these routes.[8] The reasons for considering

injectable opioid agonist treatment and implants differed between opioid users who were incarcerated and those who were not. It has been suggested that among incarcerated individuals, reasons such as "no longer taking a daily treatment" and "having a more discreet medication" were more appealing for potential use of extended-release buprenorphine, whereas in non-incarcerated individuals, reduction of withdrawal symptoms and lower potential of misuse were the more appealing reasons.[9]

Patient preference is recognized as an important concept in opioid use disorders. Shared decision-making has also been given due importance in opioid use disorders. However, studies on patient preference in India have been negligible. Specifically, no data exists on the preferred routes of administration or the factors influencing these preferences among the Indian population. There is often a significant power and knowledge differential between doctors and patients in India, especially in the public health care setting, which frequently limits patient involvement in treatment decisions. Patients may have region-specific concerns (e.g., stigma, affordability, and accessibility of treatment) that influence their preferences. Hence, the present study was conducted to understand patient preferences for the treatment of opioid use disorders at a tertiary care centre in India. This study aimed to understand patient preferences for the treatment of opioid use disorders among treatment seekers.

Methods

Setting and Participants

This cross-sectional observational study was conducted at a specialized treatment center for substance use disorders in India. The center has both inpatient and outpatient facilities. It is government-funded and provides subsidized treatment to patients with substance use disorders. The center provides medically oriented care with a balanced integration of psychosocial services. The majority of the patients at the center have opioid use disorders. For patients with opioid use disorders, both opioid substitution treatment (OST) and acute withdrawal management (detoxification)-based approaches are used. Opioid substitution treatment is done with buprenorphine, initially given as daily dispensing and, at later stages, as 'take-home' dispensing for up to one week. Patients who prefer an opioid-free lifestyle or cannot come in for daily dispensing for buprenorphine are offered acute withdrawal management, which is primarily inpatient. After acute withdrawal management, patients are offered supervised naltrexone to prolong the duration of abstinence. For patients who are unable to attend daily buprenorphine dispensing but request opioid-based treatment for managing withdrawals, tramadol, given for a duration of one to two weeks, is offered for withdrawal management. The medications and specialist consultation are provided for the patients free of cost; however, a nominal one-time registration fee is charged at the time of enrolment into the treatment program.

For the present study, patients aged 18 and above, registered at the center and diagnosed with opioid use disorder as per DSM-5, were enrolled upon providing informed consent. Patients were excluded if they had features of intoxication or withdrawal, or had a medical or psychiatric comorbidity that precluded an interview-based assessment. The study was conducted from February 2024 to March 2024, following approval from the institutional ethics committee.

Procedure and Questionnaire

Participants were recruited from both the outpatient and inpatient services of the center. Participants who met the inclusion and exclusion criteria were invited to participate and were recruited using purposive sampling after obtaining written informed consent. A sample size of 150 patients was targeted based on feasibility and its adequacy for exploratory analysis. Power calculation revealed that with an alpha of 0.05 and an expected acceptance of a therapeutic option at 70%, a sample size of 150 would provide 82% power to detect an absolute difference of 10%. This study was conducted in accordance with the principles of medical ethics as outlined in the Declaration of Helsinki. Data collection was done by two of the authors (N.S. and M.K.B.), both psychiatrists currently pursuing further training in addiction medicine. It was ensured that they were not part of the treating team assigned to the participants in order to avoid direct involvement in their treatment.

The socio-demographic profile (age, gender, education, current employment status, income, and residence) was recorded. A focused substance use history was obtained, including the type of opioids predominantly used before seeking treatment, duration of opioid use, history of regular use of other substances, and history of injection drug use. The type and duration of the current treatment were recorded, along with information regarding previous treatment.

Subsequently, participants were given a predefined set of treatment options for their opioid use disorder. The options included naltrexone (oral, depot, and implant), buprenorphine (sublingual and long-acting injection), methadone, tramadol, counseling/psychotherapy, long-term residential treatment, Narcotics Anonymous meetings, and no treatment. The information was presented through a single pre-recorded video in the local language (https://www.youtube.com/watch?v = Z67HfjPNsVM), which included a brief explanation of the treatment approach and the manner of administration or dispensing. Some options, including buprenorphine injection and naltrexone implants, are not commonly available in the setting; buprenorphine long-acting injection is unavailable,

and naltrexone implants are available on a named-patient basis. The participants were given the opportunity to ask any questions. They were then asked which of the aforementioned options would be most suitable for them and how much they would be willing to pay monthly for the option. The participants were asked about the barriers to implementing their preferred option. They were also asked to provide their opinions on how long the long-term treatment for opioid use disorder should last and whether concurrent medication and counseling/psychotherapy were more beneficial than medications alone.

Analysis Strategy

The data gathered were entered into an online Google Sheets document. The data were then imported into SPSS. Primarily, descriptive statistics were used to represent data on socio-demographic information, substance use characteristics, and treatment. Mean, standard deviation, frequencies, and percentages were used to represent the data. The information about treatment options was also represented using descriptive statistics of frequencies and percentages. Missing values were not imputed.

Results

A total of 150 participants were included in the study. The characteristics of the participants are shown in Table 1. All participants were male, with a median age in the early thirties. About one-fourth of the participants had an education level above the 10th grade. About 90% of them were employed. Approximately 20% resided in the same district, about half belonged to other nearby areas in the administrative region, and about one-third were from other parts of the country. The median travel time to the center was about two hours, with 80% of the sample using public transport to access the services. Heroin was the most predominant opioid, used in about three-fourths of the cases. One third of the participants reported a history of injecting drug use. Regular use of tobacco was fairly common in this population, with a significant proportion also reporting lifetime regular use of cannabis and alcohol. The treatment-related information for opioid use disorder of the participants is presented in Table 2. About half of the patients were currently on treatment with tramadol, and about a third were on current treatment with buprenorphine. Just under 10% of the sample were on treatment with naltrexone. A total of 20 patients (13.3%) had received psychotherapeutic treatment in the last six months, while 23 (15.3%) reported having received such treatment previously. About 40% of the patients had a history of inpatient admission for opioid use disorder, and about 20% reported a history of coerced admission. While a considerable majority received tramadol as a treatment option, sublingual buprenorphine was the most preferred treatment option.

The willingness for long-term free treatment in this population is presented in Figure 1. The acceptability of sublingual buprenorphine was the highest, followed by oral tramadol and oral naltrexone. Preference for injectable or implanted long-term preparations of naltrexone and buprenorphine was lower compared to their oral or sublingual counterparts. Psychotherapy and peer self-help groups (Narcotics Anonymous) were viewed as viable options by a substantial proportion of participants. Further insights into the treatment options are presented in Table 3. Sublingual buprenorphine was the most preferred treatment option, followed by oral naltrexone. Good treatment outcomes were the most common reasons for endorsement of these options. The most commonly reported implementation barrier was the overly frequent dispensing schedule (the necessity of sublingual buprenorphine to be administered in a supervised manner in the treatment center), followed by the unavailability of the medication near their residence. About 80% of the participants were willing to pay less than

Table 1. Characteristics of the participants ($n = 150$)

Variable	Median (Q1, Q3) or frequency (percentage)
Age	31 (24, 37)
Gender Male Others	 150 (100%)
Education Up to 10th grade Above 10th grade	 115 (76.7%) 35 (23.3%)
Employment Currently employed Currently unemployed	 134 (89.3%) 16 (10.7%)
Residence The district of the centre Nearby districts in the administration entity Other parts of the country	 27 (18.0%) 79 (52.7%) 44 (29.3%)
Time taken to travel to the centre (hours)	2 (1, 3)
Mode of transport to the center Own vehicle Public transport	 29 (19.3%) 121 (80.7%)
Per-capita monthly family income in Indian rupees	4000 (2000, 5000)
Predominant opioid used prior to seeking treatment Heroin Natural opioids (afeem, doda, etc.) Pharmaceutical opioids (tramadol, codeine, etc.)	 116 (77.3%) 19 (12.7%) 15 (10.0%)
Duration of opioid use (years)	8 (5, 10)
History of injecting drug use	47 (31.3%)
Any diagnosed medical comorbidity of more than 1 month	14 (9.3%)
Regular use of other substances (in lifetime) Tobacco Alcohol Cannabis Sedative-hypnotics Stimulants	 137 (91.3%) 45 (30.0%) 68 (45.3%) 9 (6.0%) 8 (5.3%)

Data are presented as frequency (percentages) or median (quartile 1, quartile 3). Median and quartiles were used as the normality assumption was not met.

Table 2. Treatment-related information ($n = 150$)

Variable	Frequency (percentage)
Current pharmacological treatment for opioid use disorder Buprenorphine sublingual Tramadol oral Naltrexone oral Methadone None	 50 (33.3%) 78 (52.0%) 13 (8.7%) 1 (0.7%) 7 (4.7%)
Any current psychotherapeutic treatment (last six months) for opioid use disorder (counseling or structured therapy of more than 30 minutes, provided to the patient as counseling)	20 (13.3%)
Any admission (voluntary or coerced) for opioid use disorder in lifetime	62 (41.3%)
Any coerced admission in any setting for opioid use disorder in lifetime	32 (21.3%)
Past pharmacological treatment for opioid use disorder* Buprenorphine sublingual Tramadol oral Naltrexone oral Others	 67 (44.7%) 138 (92.0%) 19 (12.7%) 2 (1.3%)
Preferred pharmacological treatment for opioid use disorder Buprenorphine sublingual Tramadol oral Naltrexone oral Others None	 74 (49.3%) 57 (38.0%) 19 (12.7%) 1 (0.7%) 1 (0.7%)
Any past psychotherapeutic treatment for opioid use disorder (counseling or structured therapy of more than 30 minutes duration, provided to the patient as counseling)	23 (15.3%)

* Some patients endorsed more than one option

INR 1000 monthly for the treatment. Approximately half of the participants opined that treatment should last less than a year. A substantial proportion (about 90%) reported that concurrent medication and counseling or psychotherapy would be more beneficial than medications alone.

Discussion

Considering patient preferences for the treatment of opioid use disorder improves their treatment outcomes.[5] This is the first study from India that examined patient preferences for a range of treatment options for the long-term management of opioid use disorder. The average age of the respondents was 31 years; all were men, and most belonged to a lower socio-economic status. This socio-demographic profile is commonly observed in patients receiving treatment for opioid use disorder in India.[10] A key aspect of this study was that participants were shown a video that explained the mechanism of action, mode of intake, and usual dispensing frequency of all medications. This is an effective yet underutilized tool to provide patients with information and education.[11] Once they had understood all the options, the participants were asked about their preferences. Although most patients were receiving tramadol at the time of data collection (52%), most of them preferred sublingual buprenorphine

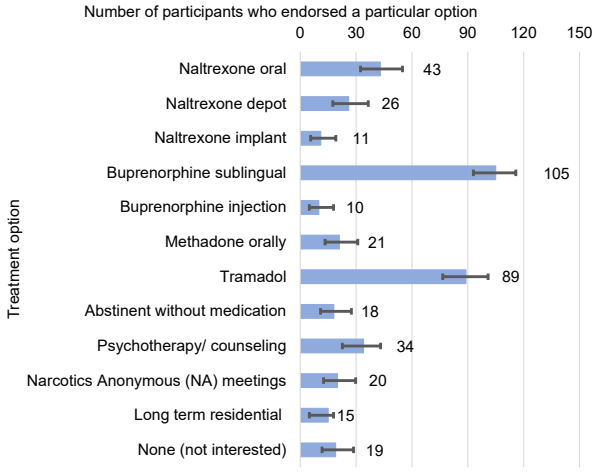

Figure 1. Willingness for long-term treatment if provided free ($n = 150$)
The figure presents the number of participants who were willing to have a particular treatment option for opioid use disorder if provided free of cost to them. Error bars represent the confidence intervals. Answers were in yes/no. Options were not mutually exclusive.

(41.3%), followed by oral tramadol (33.3%) and oral naltrexone (8.7%). Tramadol is commonly used for withdrawal management, which by default becomes short-term maintenance treatment for patients, while buprenorphine is the most commonly prescribed drug for agonist maintenance in India.[12,13] Past studies have also found that buprenorphine is a preferred long-term treatment option by patients worldwide due to its favorable effect on craving and withdrawal, lower addictive potential, greater tolerability, and higher social acceptability. Many see it as their preferred choice against methadone.[14] Methadone was not chosen by any of the participants (although the results may have been different in another setting where methadone was available). In addition, previous studies have shown that patients with opioid dependence syndrome do not prefer methadone due to logistical reasons, fear of dependence, and side effects.[15,16] A multicenter study from Ukraine indicates that visiting a methadone clinic is stigmatizing.[17]

The question on the reason for treatment preference was posed as an open-ended enquiry. Based on their responses, the reasons were broadly classified into treatment outcomes, logistic reasons, and acceptability of medication. Most respondents reported that the favorable treatment options would be those recommended by their doctor and lead to a better chance at abstinence and improved quality of life. Besides, logistics such as travel expenses, dispensing schedule, and accessibility played an important role in the selection of treatment options. In contrast, responses in an earlier study on male Iranian patients indicated that patients chose treatment programs that allowed for anonymity, prevented stigma, and helped resolve family concerns.[18] Logistics was a key consideration for 14.7% of study participants. These responses should be viewed in the context of the average distance travelled to reach the center (two hours) and the fact that most

Table 3. Further insights into treatment options from patients ($n = 150$)

Variable	Frequency (percentage)
Which options among the above would be most suitable?	
Oral naltrexone	13 (8.7%)
Naltrexone depot	6 (4.0%)
Naltrexone implant	3 (2.0%)
Sublingual buprenorphine	62 (41.3%)
Buprenorphine long-acting injection	3 (2.0%)
Oral methadone	0 (0.0%)
Tramadol	50 (33.3%)
Abstinent without medication	3 (2.0%)
Psychotherapy/counseling	3 (2.0%)
Narcotics Anonymous meetings	5 (3.3%)
Long-term residential	1 (0.7%)
Reasons for the suitability of the option	
Treatment outcome (doctor's recommendation, better chances at abstinence, other options have failed in the past, fear of dependence on other medications, and fear of craving and withdrawal on other options)	116 (77.3%)
Acceptability of medication (greater tolerability, fewer side effects, route of administration, most approved by peers, family, and community)	8 (5.3%)
Logistic reasons (less expenditure on travel, less absence from work, dispensing schedule is more favorable, and availability at a chemist shop or area closer to home)	22 (14.7%)
Others/ none	4 (2.7%)
Implementation barriers	
The dispensing schedule is too frequent	81 (54.0%)
Side effects of medications are intolerable	8 (5.3%)
Doctor's disapproval of the option	0 (0.0%)
Peer's disapproval of the option	1 (0.7%)
Family's disapproval of the option	0 (0.0%)
Past negative experiences due to side effects	2 (1.3%)
Past negative experiences due to relapse	1 (0.7%)
Unavailability of medication near the residence	38 (25.3%)
Route of administration	6 (4.0%)
How much would you be willing to pay for monthly treatment at the maximum	
INR 0 to 500	99 (66.0%)
INR 500 to 1000	22 (14.7%)
INR 1000 to 2000	15 (10.0%)
INR 2000 to 5000	8 (5.3%)
INR 5000 to 10000	1 (0.7%)
INR 10000 to 20000	0 (0.0%)
INR 20000 to 40000	0 (0.0%)
More than 40000	5 (3.3%)
How long should the long-term treatment last?	
One year or less	81 (54.0%)
1 to 2 years	42 (28.0%)
2 to 5 years	18 (12.0%)
More than 5 years	9 (6.0%)
Is concurrent medication and counseling/psychotherapy more beneficial than medications alone?	
Yes	133 (88.7%)
No	9 (6.0%)
Not applicable or cannot say	7 (4.7%)

INR Indian rupees (local currency in India). Reasons for the suitability of the option included some pre-built choices and an option for others. Barriers to implementation had pre-determined options with an option to add any other barrier if the participant deemed relevant.

participants (90%) travelled from other districts to reach the center. In addition, poor access to long-term options for the treatment of opioid use disorders has been reported in different parts of the world, and specifically in India.[19,20] Most of the respondents were full-time employed (85.3%) and probably found it difficult to attend frequent dispensing appointments. This may explain why frequent dispensing schedules (54%) and long commutes to the treatment center (24.3%) were perceived as the greatest barrier to treatment by the study respondents. Past studies on treatment seekers have also shown that flexible treatment options, such as relaxed dispensing schedules, could improve treatment retention.[21,22]

Despite its logistic benefits and potential for better treatment outcomes, the study participants showed low preference for injectable and implant formulations of buprenorphine (2%) and naltrexone (6%). These findings indicate an overall perceived discomfort with invasive, irreversible formulations of both opioid agonists and antagonists. Previous studies have also found that patients preferred short-acting over long-acting medications for similar reasons.[8] Patients have reported a theoretical willingness to receive depot buprenorphine and injectable naltrexone in separate studies conducted in the UK and the USA.[23,24] However, a review of studies comparing patient adherence to oral naltrexone and naltrexone injection found that the oral formulation had higher adherence.[25]

Our study has some limitations. Firstly, findings cannot be generalized as data were collected from respondents visiting a single tertiary care center in India. A multicenter assessment with a larger sample size could be planned for the future. Secondly, the small sample size precluded any subgroup assessments based on patients' clinical and socio-economic backgrounds. Also, participation from treatment seekers of different treatment settings, as well as other stakeholders in treatment, such as caregivers, treatment providers, and civil society organizations, could be planned in future research. Thirdly, although the respondents were assured that their responses would not affect their treatment, their responses may have been biased as the interviewers were also potential treatment providers. Another limitation could be that some treatment options, including methadone, long-acting buprenorphine, and naltrexone, were not available at the centre and may have seemed unrealistic options to the patients. Furthermore, the sample comprised exclusively men, which may reflect the fact that an overwhelming majority of the treatment seekers in the region are male.[2] The video developed to present the treatment options did not undergo a validation exercise to assess its comprehensibility and effectiveness. Despite these limitations, our findings are largely consistent with those of other studies that have explored preferences and attitudes toward long-acting medications for opioid use disorder. This study brings out specific preferences regarding long-term treatment for opioid use disorder in India. Sublingual buprenorphine tablets were the most commonly preferred option, while most participants were unwilling to try injectable and implantable medicines. While the treatment decisions are largely made based on effectiveness, logistics play a major role in deciding treatment preferences.

Conclusion

Most participants preferred oral formulations of opioid agonist medications over long-acting formulations. They preferred agonist medications over antagonists. A majority of participants preferred some form of treatment, ideally a combination of pharmacological and psychosocial therapy, over no long-term treatment at all. Participants exerted preference based on the impact of medication on the management of craving and withdrawal, its ability to ensure abstinence, and improve quality of life. The other major deciding factors were the frequency of dispensing and the disruption of routine life and work schedules. These logistic issues (particularly dispensing being too frequent) were also perceived as the biggest barrier to receiving long-term treatment for opioid use disorders. These results suggest that access to opioid agonist formulations must be expanded, and shared decision-making is required to select a formulation aligned with treatment goals and patient expectations.

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None.

Authors' Contribution

Conceptualization: Siddharth Sarkar, Shalini Singh, Anju Dhawan
Data curation: Newfight Seth, Manmeet Kaur Brar
Formal analysis: Siddharth Sarkar, Adit Verma
Investigation: Newfight Seth, Manmeet Kaur Brar
Methodology: Siddharth Sarkar, Shalini Singh, Anju Dhawan
Project administration: Siddharth Sarkar
Resources: Siddharth Sarkar
Supervision: Siddharth Sarkar
Visualization: Adit Verma
Writing–original draft: Shalini Singh
Writing–review & editing: Siddharth Sarkar, Adit Verma, Newfight Seth, Anju Dhawan

Competing Interests

The authors have no conflicts of interest to disclose.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, S.S., upon reasonable request.

Ethical Approval

The study was conducted after obtaining approval from the institutional ethics committee (AIIMSA00425/12.01.2024 dated January 16, 2024). The participants were recruited into the study after providing written informed consent.

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