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ABSTRACT The aim of this study was to assess drop-out rates and associated reasons among patients at the Iranian National Center for Addiction Studies (INCAS) clinic. In a one-year period (April 2014 to March 2015), all patients with drug dependence who had been referred for treatment and attended for a first assessment were included in this study (N=242). Those who received treatment were followed until March 2016. Survival analysis showed that 70.2% had dropped out from treatment. Log rank test showed that treatment drop-out rates differed between the different approaches used (P

Taux d’abandon dans un centre de traitement de la dépendance aux drogues et raisons associées

RÉSUMÉ La présente étude avait pour objectif d’évaluer les taux d’abandon et les raisons associées parmi les patients de la clinique du Centre national iranien d'études sur les addictions (INCAS). Sur une période d’un an (avril 2014 à mars 2015), tous les patients souffrant de dépendance aux drogues ayant été transférés en vue d’un traitement et consultant pour la première fois dans cette structure ont été inclus dans l’étude (n=242). Les patients sous traitement ont été suivis jusqu’en mars 2016. L’analyse de survie a montré que 70,2 % des patients avaient abandonné le traitement. Le test du log-rank a révélé que les taux d’abandon de traitement différaient selon les approches utilisées (p

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Introduction

Substance use disorder is a chronic relapsing condition which requires long-term treatment. In the Islamic Republic of Iran, it is estimated that > 1 million people are suffering from addiction to an illicit drug (1). During the past 2 decades, drug treatment services have expanded dramatically, both in service coverage and diversity of services. There are now > 5000 outpatient drug treatment clinics in the country. However, only 21% of people with drug use disorder have received services from these clinics in the past 12 months (1).

Addiction treatment is a complex process and achieving desirable outcomes relies on several factors. Retention in the treatment and completion of its course are some of the most prominent factors. Completing the course of treatment is associated with higher abstinence, lower crime rate, lower relapse and higher employment compared to those who have dropped out (2). At the same time, there are studies indicating that drop-out might result in wasting resources of the individual, the healthcare system and society. There have been several studies on treatment retention, drop-out and associated factors; however, due to differences in the types of treatment, treatment setting and patients' characteristics, different rates of drop-out, from 0.4% to 90%, have been reported (3).

Different reasons have been given for drop-out. Lack of motivation, fear of treatment failure and interpersonal conflicts have been reported as the reasons for treatment drop-out (4–6). Therefore, with proper detection and removal of such obstacles, one may be able better to provide the required services and fulfil treatment protocols and decrease the cost to the healthcare system.

Our knowledge regarding drop-out usually comes from the results of controlled trials in experimental settings; however, the results might not be applicable to the real world. The clinic of the Iranian National Center for Addiction Studies (INCAS) could be considered as a prototype

of a specialized drug treatment clinic and observations of treatment course and outcomes from this centre can be applied to other similar facilities. The INCAS clinic, with more than a decade of experience in the field of delivering drug treatment services, is an academic centre affiliated to the Tehran University of Medical Sciences. The clinic is located at the heart of the city of Tehran and receives a variety of clients from all over Tehran.

For opioid dependence, the INCAS clinic offers an assortment of services including methadone and buprenorphine maintenance treatment, short-term detox programmes with counselling, and other psychosocial rehabilitation approaches. The provided treatment modality for each patient is based on patient characteristics, severity of dependence, previous treatment attempts and patient preference. Maintenance treatments could continue for several years but usually buprenorphine maintenance treatment (BMT) is provided for 1 year and detox programmes are followed by 6-months relapse-prevention counselling. For amphetamine-type stimulants dependence, the centre offers a treatment package, called the Matrix model, which is a structured 24-session individual psychotherapy with a cognitive–behavioural approach along with family education. The therapy sessions are provided 2 or 3 times a week. These sessions cover areas such as: trigger and craving management techniques; basic required skills for remission (e.g., managing boredom and other negative emotions, building trust, stress and anger management); and relapse-prevention counselling. For cannabis dependence, similar core cognitive–behavioural techniques, as in the Matrix model, are provided for the patients. Group family education sessions are also provided. Patients are encouraged to attend group therapy, focusing on relapse prevention, after the completion of the structured therapy sessions. After 1 session of initial assessment and development of a treatment plan, the second appointment for all modalities is made within the next 7 days.

This study was carried out in a group of treatment-seeking clients of the INCAS clinic. The aims of this study were: (1) to assess the rates of drop-out in the total sample and in different treatment categories; and (2) to assess the reasons for drop-out in those who had left the treatment and provide pragmatic recommendations in order to achieve higher treatment retention rates.

Methods

We included 242 clients from April 2014 to end of March 2015 who had been referred to the INCAS clinic for treatment of opioids, amphetamine-type stimulants, prescription drugs and cannabis dependence. The INCAS clinic benefits from an electronic registry system, called Addiction Treatment Centers Automation Software (ATCAS). ATCAS was used to obtain the clients' sociodemographics, contact information, and data regarding the pattern of substance abuse and the treatment approach at each entry point. The study was conducted in 2 phases. First, drop-out was assessed using the ATCAS registry up to the end of March 2016 and survival analysis was carried out. Second, the reasons for drop-out were gathered via telephone

interviews using a questionnaire.

Drop-out was defined either as not attending at all after the first assessment or otherwise according to the specific treatment modality started. For opioid substitution treatment, a ≥ 7-day leave of treatment, and for psychotherapy and detox and relapse-prevention programmes, failure to show up for the next therapy session, even after setting another appointment were considered as drop-out.

The interviewer contacted all individuals who dropped out (either those who did not start treatment or those who had left after treatment initiation) from April to September 2015. The interviewer was a trained nurse making telephone calls with the use of ATCAS registry. For ethical and professional considerations, interviews were conducted after confirmation of the identity of the respondent. This was achieved by asking for national identity and birth certificate numbers and other identifying data. After confirming the identity of the client, the interviewers introduced themselves and gave the reasons for calling. After obtaining oral consent and stating the participant's right of refusal, the interview began. First, an open-ended question regarding the client's overall opinion toward treatment obstacles was asked. Then the interview continued by using a structured questionnaire.

Instruments

A modified version of Reason for Leaving Treatment Questionnaire (RLTQ) was implemented (6). RLTQ consists of 28 true/false questions and covers 7 domains: motivational inconsistencies (4 questions), staff conflicts (3 questions), boundary concerns (5 questions), outside influences (4 questions), programme expectations (4 questions), problem severity (4 questions) and logistic problems (4 questions). Respondents were asked to determine if the statement related to their decision not to start or to leave the treatment. A domain was considered positive if one of its related questions was true. In order to implement RLTQ, the questionnaire was translated and modified according to the cultural context of the addiction treatment services in the country. Two other questions for boundary concerns and 2 questions to assess pharmacological adverse effects for those receiving maintenance treatments were added to the questionnaire. Therefore, the total number of questions for those on maintenance programmes and nonpharmacological approaches were 32 and 30, respectively. Content validity of the questionnaire was assessed by an expert panel of drug treatment specialists.

Ethical considerations

The research protocol was approved by the Ethics Committee of Tehran University of Medical Sciences in Iran (No. IR.TUMS.REC.1394.2136). Participation in the study was on a voluntary basis, and oral consent was obtained before all interviews. All questionnaires and the database

of the study were kept confidential by the research team.

Data analysis

SPSS Statistics for Windows version 21.0 (IBM Corp., Armonk, NY, USA) and Stata Statistical Software version 13 (Stata Corp., College Station, TX, USA) were used for data analysis. For quantitative variables (such as age), t test and analysis of variance were used. For qualitative variables (such as gender, marital status, type of treatment and substance of abuse) $\chi 2$ test was applied. Survival analysis (Kaplan–Meier: log rank test and Cox regression) was used to assess days staying in treatment. For those who started treatment, the period of survival of each case was calculated between the date of admission to the clinic and the date of leaving treatment or completion of treatment. For the case of methadone maintenance treatment (MMT), survival was calculated until the end of the study period in March 2016. The survival data were considered to be subject to right censoring. P values

Results

Between April 1, 2014 and March 31, 2015, 242 individuals with substance use disorders (226 men and 16 women) were referred to the INCAS clinic for treatment and attended for initial assessment. A total 16 689 person–days of services were delivered. Following the initial assessment, treatment need was identified as solely for stimulants (56.2%), solely for opioids (32.6%), both for stimulants and opioids (7.4%) or solely for cannabis or prescription drugs (3.8%). Among the clients, 61 (25.2%) visited only once and did not return again, although the initial assessment was done and the treatment approach was determined and recommended. Treatment initiation failure was 26.4%, 26.9%, 21.0% and 8.3% for psychotherapy, MMT, BMT and detox programme, respectively. Moreover, treatment initiation failure was 28.7%, 25.3% and 11.1% for stimulant, opioid and combination of opioid and stimulant dependence, respectively and zero for cannabis and prescription drugs.

In addition to the 61 clients who, following the first assessment, did not take up further treatment offered at the centre, from the remaining 181 clients who did engage further, 127 (70.2%) subsequently dropped out. Drop-out rate after treatment initiation was 74.3% for psychotherapy and 63.0–66.7% for the other 3 medically assisted treatment modalities. The overall incidence rate of drop-out from the treatment was 7.6 per 1000 person–days of service [95% confidence interval (CI): 6.4–9.1]. Twenty-five percent had left the treatment in the first 12 days and 50% in the first 42 days. Drop-out during the first 3 months was seen in 62.0% [standard error (SE) 0.05] of opioid-dependents and 82.4% (0.03) of stimulant-dependents

(P

Comparison of those who had dropped out with those remaining on treatment revealed that age, gender, marital status, employment, substance of abuse and treatment modality were not

significantly correlated with drop-out (Table 1).

Rates of drop-out from different treatment approaches (detox programmes, psychotherapy, BMT and MMT) are demonstrated in a Kaplan–Meier curve (Figure 1). Log rank test showed that treatment drop-out differed significantly for different approaches (P

To assess the reasons for not starting or leaving treatment, a minimum of 3 and a maximum of 7 telephone calls were made to the 188 individuals who either did not start treatment or had dropped out after initiation. Seventy people (37.2%) could not be reached due to several possible reasons: wrong number in the registry, change of phone number, disconnected line or non-response to the call. Contact was made with 118 individuals, from which 40 (33.9%) refused to participate in the study. In addition, 2 were incarcerated and 2 were in a residential drug treatment facility. Another 2 had passed away, both opioid dependent, 1 due to accidental electrocution and 1 had committed suicide. The questionnaire was filled out for 76 individuals (Figure 2). Those who could not be reached or refused to participate did not significantly differ in age (P = 0.66), gender (P = 0.29), type of substance (P = 0.29) and treatment modality (P = 0.42) from those who completed the telephone interview.

While answering the initial open-ended question regarding the reason of not stating or leaving treatment, the following answers were found to be more common: commuting difficulties, dissatisfaction with the services, cost of treatment and finally lack of motivation. Some indicated adverse effects of methadone; another group had difficulties matching themselves with the working hours of the centre, had conflicts in the family or were concerned about treatment failure. Few indicated medical conditions or stigma regarding attending a drug clinic.

Results of the interview with RLTQ (Table 2) showed that outside influences (86.3%) followed by motivational inconsistencies (65.8%) were the most common reasons for not starting or leaving treatment. Staff conflicts were reported by 27.6% of respondents. In the outside influences domain, 61.6% believed that they could get better on their own or through self-help groups. In the motivational inconsistencies domain, 50.0% mentioned that they had changed their minds about being in treatment at that moment.

Apart from the outside influences domain (P = 0.01), others were not significantly correlated with treatment modality. Three clients from detox programmes, 43 from psychotherapy services, 13 in MMT and 4 in BMT indicated outside influences for not starting or leaving treatment. Motivational inconsistency did not have a significant association with gender (P = 0.20), marital

status (P = 0.29), level of education (P = 0.56), employment (P = 0.83) and the type of substance (P = 0.28). Clients aged ≤ 30 years mentioned motivational inconsistencies significantly more that those aged > 30 years (P = 0.03). Among those who completed the questionnaire, 3 were women. All 3 mentioned motivational inconsistency as the main reason and none reported conflicts with staff or severity of the problem.

Service-related factors constituted a lower, but still considerable proportion of the reasons given for not starting or leaving treatment. Long waiting list before the initiation of the treatment package (34.3%), service delivery hours (32.9%), having difficulties with following the regulations of the centre (32.9%), cost of services and lack of insurance coverage (30.1%), disinterest in the proposed treatment modality (27.4%) and ambiguities regarding expectations from treatment outcomes (17.8%) were the mentioned reasons in this regard.

A higher number of those who had not started treatment following their initial assessment reported motivational factors, staff conflicts and logistic problems as their main reasons for drop-out. A significant number of these clients mentioned that they decided to go to another programme after their first visit to this centre.

Discussion

This study showed that more than two thirds of the clients had dropped out of treatment, even after excluding those for whom the treatment had not been initiated. Other studies have also indicated high drop-out rates. In a systematic review, Brorson et al. indicated that in more than one-third of the 122 included studies, attrition rates of 50–90% were reported (3). Drop-out differed according to the definition and the treatment setting and the time span of evaluation. A systematic review of randomized clinical trials showed that 47.9% on BMT and 37.7% on MMT had dropped out within 2–52 weeks (7). The studies included in the mentioned systematic review benefitted from a structured and highly supervised treatment plan. However, the effectiveness is not usually the same in the real world. For instance, a study reported 67.6% drop-out within 18 months in MMT clinics (8). In another study half of the patients dropped out within 12 months (9). Another study showed that the rate of 12-week opioid abstinence was 16% in BMT and 8% in those on oral naltrexone (10). The result of a national household study in the Islamic Republic of Iran indicated that nearly 40% of those receiving an outpatient health service for addiction have dropped out of treatment (1).

Several factors influence treatment retention. Treatment modality has been proposed as one of the most important factors. In the current study, treatment drop-out happened earlier in the detox programme and later in BMT. Opioid substitution treatment programmes are associated with lower mortality, crime, injecting drug use, HIV acquisition, and also benefit from higher

retention rates (11). Although, maintenance treatments are associated with more desirable outcomes, the cost of the treatment and the associated financial burden could influence the individual's choice (12,13). When comparing MMT with BMT, MMT was associated with lower cost and higher effectiveness and higher retention rates in randomized trials (7,14). Better retention rates of BMT in our study might have been due to the selection of patients. Those with less severe opioid dependence are preferably offered BMT. Although all 3 approaches of detox, MMT and BMT are provided in this centre and most of the clients were married, literate and employed, MMT was preferred. Client preference has an important role in treatment choice and could be the reason for higher rates of methadone implementation at the centre.

The type of substance can also influence treatment retention. In the current study, drop-out in the first 3 months was significantly higher in those with stimulant compared to opioid dependence. The review by Brorson et al. indicated that in most of the studies, type of substance was not correlated with treatment retention (3). There have been a few studies on retention rates for stimulant dependence (15–17). A study on the trend of drop-out in this group indicated 53–64% rates of drop-out (15). Another study indicated that treatment attrition was not significantly different in heroin versus amphetamine users. For decades, opium has been the main substance of abuse in the Islamic Republic of Iran, while methamphetamine is a new phenomenon. The results from 3 repeated national studies on drug use show that methamphetamine appeared in the mid-2000s (18–20). Since amphetamine-type stimulant treatment has just recently started in the country, it is necessary to enhance staff training and supervision to improve the quality of such services and to try to optimize retention rates.

In the current study, 25.2% of the clients attended only a single visit at the clinic, and although a thorough assessment was done and the treatment plan was agreed, the client did not return for initiation of the programme. Other studies have also reported significant attrition after the first visit. For example, drop-out rates of 15% (21), 27% (22) and 25.9–41% (23) have also been reported after the initial assessment. Therefore, the first contact is crucial. Building a proper rapport, providing useful information and raising awareness regarding treatment outcomes could help in retaining the individual in the treatment process. It is necessary to assess the motivational aspects of the client and utilize proper techniques to enhance them during the first contact.

Regarding the reasons for drop-out, factors associated with service delivery although reported by a minority of respondents, are also of importance. Other studies have indicated that these factors constitute a minority of the reasons for leaving treatment (6,24,25). However, adding reasons related to boundary concerns, programme expectations and logistical problems results in a significant contribution of clinic-related factors. Removing such obstacles could promote the quality of the provided services. The clinics should closely monitor organizational factors that might negatively affect patient adherence. Developing quality assurance and improvement

measures, providing social support packages, flexible timing, insurance and commuting facilitation could have desirable effects on the treatment process and thus lower drop-out.

Another finding of this study was that motivational inconsistencies were one of the main reasons for not starting or leaving treatment. Most of the respondents stated that they had changed their mind about being on treatment and some felt they were not ready for a change at the moment. Lack of motivation has been reported as a reason for drop-out in several different studies (3,4,6,25,26). Addiction treatment is a long-lasting process and requires several changes in the individual's lifestyle and abstaining from pleasure-seeking behaviour. It is obvious that the individual's motivation will change during this process. Therefore, regular monitoring and use of motivational enhancement techniques and teaching adaptive coping skills could increase treatment retention.

Outside influences were also frequently mentioned as reasons for not starting or leaving treatment. Most of the respondents believed that they could use other methods for recovery, either on their own or through self-help groups. It is possible that particularly for some of those initially engaging with and requiring psychotherapy, alternative available supports may be associated with a capacity for self-recovery outside of treatment and so a person may reasonably feel that he or she does not need to attend specific treatment services. This points to a potential positive reflection on the possible value of practitioners and services providing good information and visibility of the additional or alternative external supports available, including from the initial assessment onwards.

Another group mentioned conflicts with the family members as an obstacle for treatment. External factors are a part of the patient's real world, but could serve for denial or as an excuse to procrastinate the treatment process. Assessing the clients' beliefs in this regard and their support from significant others could be used to tackle this obstacle.

Demographics did not correlate with drop-out in our study. The only exception was that younger individuals had lower levels of motivation than older ones. In other studies, low motivation has been found to be more prevalent in clients who are single than those who are married (6). Considering the findings of the current study, it seems that use of motivational techniques and obtaining the support of the family, especially for those who are younger, could help in achieving better results.

The study had some limitations. The sample size was small in some subgroups: detoxification

as a treatment modality, young age group and female gender. Moreover, building the trust of the interviewees through telephone calls was challenging. Although several measures were adopted to facilitate engagement in the process and to obtain consent, a significant number did not either answer or refused to participate in the study. Recall bias was another limitation of the study, and in some cases it had been a while since the patients had dropped out of treatment and had difficulty to recall the reason why they left.

Conclusions

The results of the current study indicated that the motivational inconsistencies had the highest impact on not starting or leaving treatment, while several other influential, and potentially remediable, service-related factors were also identified. The findings of this study could be of use for service providers and policy-makers to adopt proper measures to increase treatment retention. It is also recommended that for enhancing the motivation of the clients, novel and more client-centred approaches with proper involvement of family members be adopted.

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