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Pre-treatment Drug Use Characteristics and Experiences among Patients in a Voluntary Substance Abuse Treatment Center in Malaysia: A Mixed Methods Approach

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Abstract

Background—Drug use in Malaysia remains a significant public health and social problem despite implementation of harsh punitive drug policies such as forcibly placing suspected drug users into compulsory drug detention centers (CDDCs). Following criticism over human right violations in CDDCs, Malaysia has begun to transition towards voluntary drug treatment centers known as Cure & Care (C&C) Centers. To best serve the needs of regional C&Cs, data on drug use are essential among patients accessing treatment. Using a mixed methods approach, we examined pre-treatment drug use characteristics and experiences with addiction treatment among C&C patients in Kelantan – a religiously conservative state in Northeast Malaysia with high prevalence of drug use but where limited data are available on drug use patterns.

Methods—A mixed methods study utilizing surveys (N=96) and semi-structured interviews (N=20) was conducted among a convenience sample of inpatients and outpatients at the Pengkalan Chepa C&C Center in Kelantan.

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The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

AK conducted the quantitative analysis, interpreted the results and wrote the manuscript. SB analyzed and interpreted the qualitative findings and assisted in writing the results section. FK and MG collected the data and assisted in content analysis. ADK and FL oversaw research conception and design, and helped AK write the discussion section.

Results—Survey results showed 89.6% of participants met screening criteria for moderate to severe addiction severity. Nearly 90% reported lifetime illicit amphetamine (syabu, meth, ice, and pil kuda) use followed by alcohol (60.4%) and opioids (52.1%). Qualitative results pointed to the powerful influence of peer networks in drug initiation and relapse, and the positive effect of the C&C on drug rehabilitation.

Conclusions—The drug use profile of the Kelantan C&C enrollees shows extensive pre-treatment amphetamine use, polysubstance use, and injection drug use including high-risk behaviors such as sharing needles, syringes and containers. Evidence points to the need for integration of social support-oriented practices and behavioral interventions into the rehabilitation of drug users in this region.

Keywords

Substance abuse treatment; harm reduction; compulsory drug detention centers; drug policy; amphetamine; Malaysia

INTRODUCTION

In Malaysia, people who use drugs (PWUD) are often forcibly placed into compulsory drug detention centers (CDDC) known as Pusat Serenti or PUSPEN. As per the 1952 Dangerous Drugs Act and 1983 Drug Dependence (Treatment and Rehabilitation) Act, people who test positive for drugs are detained in CDDCs for a mandatory two-year period without legal due process and forcibly detained in these facilities against their will.[1,2] CDDCs in Malaysia and other Southeast Asian countries have been criticized for a variety of human rights violations,[3–5] including indefinite detention, physical abuse and torture of detainees,[3,4] and the denial or inadequate provision of medical care including evidence-based substance abuse treatment (SAT) despite high prevalence of substance use disorders (SUDs) among detainees.[6,7] Despite international criticism, the number of CDDCs has continued to rise in East and Southeast Asia.[8] By 2012, an estimated 235,000 people were detained in over a thousand CDDCs throughout these regions,[9] of which 6,658 individuals alone were detained in Malaysia's 28 CDDCs.[6]

The increasing number of PWUD in Malaysia and the insufficient scalability of harm reduction programs like needle and syringe exchange programs (NSEPs) and opioid agonist therapies (OAT) like buprenorphine and methadone, which were introduced in 2001 and 2006 respectively, have thwarted HIV prevention efforts.[10,11] Relapse to drug use among individuals released from CDDCs in Malaysia ranges between 70% and 90% within one year after release.[8] HIV prevalence among CDDC detainees is also profoundly high at 10%[12] compared to 6% in Malaysia's prisons and 0.41% in the general population.[13] This recognition of low efficacy, poor access to treatment and care, and lack of evidence-based treatments has recently resulted in Malaysia shifting away from restrictive policies toward voluntary and more evidence-based harm reduction programs including changes within the criminal justice system.[14,15] In 2010, as part of the "1Malaysia" governmental initiative, a period of transition began which saw several CDDCs being converted to Cure & Care (C&C) Centers that provide comprehensive, voluntary substance abuse treatment services.[16] Unlike other forms of drug treatment that are operated primarily by the Ministry of Health,

C&Cs evolved from the Ministry of Home Affairs, which primarily oversees the Police Department, Prisons Department and the Anti-Drug Agency (AADK). The new C&C Centers were designed to subsume treatment responsibilities previously provided by CDDCs by voluntarily offering recovery services for PWUD, including integration of inpatient and outpatient treatment, onsite medical care, psychosocial interventions, spiritual programs, psychiatric counseling, vocational training, and most importantly OAT.[7,17]

One of the defining features of the C&C system is the provision of OAT (methadone only); data on client drug use behaviors and recovery needs are therefore crucial for planning service delivery. Malaysia's first C&C Center opened in 2010 in Sungai Besi, near Kuala Lumpur, followed soon by one in Kota Bharu, capital of the northeastern state of Kelantan. By 2012, 10 of the 28 CDDCs had been converted into C&C Centers.[6] A recent study of the Sungai Besi C&C showed that opioid use disorders, which are amenable to treatment with OAT, were the primary pre-treatment disorder among clients, which is representative of local drug use patterns in the greater Kuala Lumpur area.[17] Methadone, an evidence-based treatment for opioid dependence, therefore, is a rational strategy for addressing the problems associated with drug use there. Drug use in Malaysia, however, is not uniform throughout the country and there is emerging evidence of a growing amphetamine-type substance (ATS) epidemic in other parts of Malaysia,[18] including in the Kelantan region.[19]

Currently there are no evidence-based medication-assisted therapies (MAT) available to treat ATS disorders.[20] Despite reports of ATS use in Kelantan,[21,22] no information is available about treatment-seeking drug users in Northeastern Malaysia to help guide treatment and HIV prevention efforts there. We therefore sought to examine self-reported drug use behaviors using a mixed methods approach, among a sample of individuals accessing treatment in the C&C center in Kota Bharu, Kelantan. The implementation of semi-structured interviews in addition to a quantitative survey was deemed to be the most appropriate methodology because of the lack of ***any*** systematic research on drug use in this region of Southeast Asia. The eventual purpose of this two-pronged approach is to help guide treatment strategies based on both empirical and particularized drug use characteristics, behaviors and experiences.

METHODS

Study Setting

Kelantan is one of the most religiously and socially conservative states of Malaysia, with 95% being Malay and Muslim, and borders Thailand. Kota Bharu, Kelantan's capital, is where this study was conducted at the Pengkalan Chepa C&C Center, originally a CDDC for women that transitioned to a C&C Center in 2010. This C&C facility currently provides both inpatient and outpatient services and is staffed by approximately 20 employees, including a pharmacist and a psychologist. Treatment services at the CC&, including methadone treatment, are available free of charge. Treatment is voluntary, so individuals cannot be coerced into the C&C and must voluntarily agree to participate in it. All patients seeking C&C services first complete a comprehensive intake by a trained counselor, which includes the World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test (ASSIST).[23] Based on the type and severity of their addiction and social and

legal situation, the patient can select from a menu of rehabilitative activities that may include OAT, psychosocial counseling, and religious instruction. The frequency of psychosocial and religious counseling varies depending on the patient's needs and interests, and can either be provided in either a group or one-on-one format. Additionally, patients can participate in optional group physical activities that include games, hiking, artistic activities, musical therapy, and vocational training.[16]

Data were collected over six weeks from June to July 2012, using a mixed methods approach - quantitative surveys and qualitative in-depth interviews. The survey was conducted first; a convenience sample of individuals who participated in the survey was then approached to partake in the in-depth interview. Institutional review boards at both the University of Malaya and Yale University approved the study.

Study Participants

Participant recruitment was initiated and coordinated by C&C staff due to confidentiality concerns. Inpatients and outpatients in the C&C were informed about the study by the staff and they could voluntarily sign up to learn more information. Those individuals expressing interest were then referred to trained research assistants affiliated with SAHABAT, a local non-governmental organization that operates harm reduction programs in Kota Bharu. Inclusion criteria included being 18 years or older and having been an inpatient or outpatient at the facility for at least one month. The median duration of treatment for this study sample was 167 days, i.e., approximately five and a half months. Eligible clients underwent informed consent procedures by research staff for the survey portion of the study and a medical chart review. Among the 96 patients (47 inpatients and 49 outpatients) participating in the survey, 77 agreed to participate in the qualitative interview. Of these, 19 (8 inpatients and 11 outpatients) completed in-depth interviews in addition to one former patient-turned C&C employee. Trained research assistants conducted the surveys and the interviews in a confidential, on-site private room and all communication was in Bahasa Malaysia, the local language. Individuals participating in the survey received RM30 Malaysian *ringgit* ($10 USD) and those participating in the interviews received an additional RM30.

Quantitative Measures

The survey questionnaire consisted of socio-demographics, criminal justice and drug use history, medical co-morbidities, sexual risk behaviors, motivations for seeking treatment at the C&C, and attitudes towards the C&C both prior to initiating treatment and within the 30 days prior to study participation. Apart from questions on specific type of drug use, the 10-item Drug Abuse Screening Test (DAST-10) was used to assess addiction severity.[24] Depression was assessed using the Center for Epidemiologic Studies Depression Scale (CES-D);[25] cut-off scores of ≥16 and ≥27 were used to define moderate to severe and severe depressive symptoms, respectively. Additionally, questions on experiences with methadone and HIV treatment were asked to patients who had received methadone or were HIV-infected, respectively. The survey was constructed in English, translated into Bahasa Malaysia and then back-translated to ensure face validity of all study measures.[26–28]

Qualitative Measures

Semi-structured interviews were conducted in Bahasa Malaysia using an interview guide[16] consisting of open-ended questions referring to previous drug use behaviors, perceptions of treatment, motivations to seeking treatment, perceived efficacy of treatment, adherence, family relationships, criminal history, barriers to treatment before coming to the C&C, and satisfaction with the C&C. A trained research assistant employed by the community syringe exchange program SAHABAT interviewed each patient in a private setting apart from C&C staff. This research assistant introduced himself and the study, and completed informed consent procedures before proceeding with the interview. The interviews ranged from 35-58 minutes. They were audio-recorded and later transcribed and translated into English. A bilingual translator was employed to ensure that the transcripts were loyal to the respondents' original statements.[29]

Analysis

Quantitative data analysis was conducted using SPSS 19 (IBM Corporation, United States). For the purpose of this paper, descriptive statistics were conducted on socio-demographic characteristics, physical and mental health variables, drug use variables, and reasons for joining the C&C. Additionally, tests of significance (t-test and chi-square test) were conducted to assess differences in drug use characteristics between inpatients and outpatients. Qualitative interviews were analyzed through a conventional content analysis approach[30] wherein participant responses were first used to develop codes and the relationships between the codes were then analyzed using Atlas.ti 7 qualitative analytical software, which facilitates the identification of salient themes related to the research questions.[31] The transcripts were analyzed using Atlas.ti 7; the researchers then reviewed the transcripts and met periodically to discuss and come to a consensus about how to group recurring concepts from the responses into codes. Recurring concepts in the responses that were grouped into codes represented three major themes – (1) pre-treatment drug use behaviors, (2) previous attempts to stop using drugs, and (3) reasons for joining C&C. Quotations presented in the results section are followed by the participant's anonymous numerical identifier.

RESULTS

Socio-Demographics and Medical Comorbidities

Participants (Table 1) were all male, relatively young (M=28.4 years), predominantly Malay (95.8%), and had completed higher secondary education (60%). Just like the overall sample, the qualitative participants were also all male and Malay and were slightly older (M=31.4 years). While half the patients were employed, employment was represented only among the outpatient clients. Just over a third of the participants reported having had unprotected sex in the 30 days prior to coming to the C&C. Medical and psychiatric comorbidities were not highly prevalent in this sample – 16.7% had asthma followed by Hepatitis C (9.4%) and HIV (7.3%). Psychiatric comorbidities were also relatively low, with 14.6% suffering from mild depression and 4.2% suffering from severe depression. Overall, half had been previously detained (56.8%), including remand (e.g., jail), prison, and CDDCs. There were no

significant differences in the socio-demographic characteristics of the qualitative interviewees and the overall sample from where this subset was enrolled.

Drug Use and Injection Drug Use Behaviors

Results from the quantitative survey showed that 89.6% met screening criteria for moderate to severe addiction severity. Nearly 90% of participants (see Table 2) reported lifetime illicit ATS (syabu, meth, ice, and pil kuda) use followed by alcohol (60.4%) and opioids (52.1%). ATS (57.3%) and opioids (40.6%) were the two most commonly reported drugs used. Stratifying by patient status, there were no significant differences in drug of choice or lifetime drug use except for ketum; more inpatients reported having used ketum at least once in their lifetime compared to outpatients. Cough syrup, presumably with codeine (opioids), was not assessed in the survey; however, multiple quotes from the in-depth interviews explicitly mentioned cough syrup as a drug used for relieving withdrawal symptoms:

> "My friend said to take cough syrup to relieve the withdrawals. At that time, cough syrup was very popular among addicts and it was cheaper than heroin. After taking the cough syrup, I took it again with the methamphetamine and it felt good so I took more." (#1, 36 years, outpatient)

> "I started with marijuana then cough syrup and after that only did I know morphine." (#13, 38 years, outpatient)

> "I started by smoking methamphetamine hydrochloride. After that I took cough syrup. When I was 16, I went to Kuala Lumpur to work. That's where I meet some friends and they introduced me to *brown* [heroin]. At that time, I only took drugs for fun. I didn't know that drugs could become this." (#7, 45 years, outpatient)

Overall, 28.1% of the surveyed sample reported having injected drugs. Of these, a fifth acknowledged using a syringe or needle that had been used by someone else. Similarly, 37% admitted to pulling drugs into their syringe from a container used by someone else during the 30 days prior to C&C enrollment. Again, there were no significant differences in injecting behaviors between inpatients and outpatients. Some participants described progressing to injecting drugs as an economic strategy to make their purchase last longer:

> "I took morphine by injection, 'pil kuda' too because it could be dissolved. 'Pil kuda' was too expensive and hard to find… I knew that injecting 'pil kuda' is dangerous but I felt comfortable and it saved money. Taking by [smoking], I couldn't feel it even with 3 pills. Injecting one pill would last till the afternoon if I took it in the morning." (#15, 28 years, inpatient)

Previous Attempts to Stop Using Drugs

In the interviews, participants described previous failed attempts to stop using drugs, including when detained, and explained why they relapsed.

> "When I was at PUSPEN (Pusat Serenti or CDDC), it did not affect me, because I always thought about drugs and I was not ready to stop using yet. That's why I left and started taking drugs again." (#1, 36 years, outpatient)

> "Before this, I underwent treatment at an Islamic hut school in Thailand for 2 months. After I left, I met my friends and immediately started staking drugs again." (#4, 41 years, outpatient)

Participants described the powerful influence of their friends over their drug use and attempted to avoid substance-using friends by isolating themselves futilely at home.

> "I have tried to quit by myself, yes. I locked myself in my room for a week, I withstood the withdrawals and I managed to get over it. But once I got out of the house, there were too many challenges, especially from my friends who would always ask me to take drugs with them. They knew that I stopped but they kept pestering me. Some even offered to buy the drugs for me. After a while, I gave in to my friends and I started taking drugs again." (#6, 41 years, outpatient)

> "For 2 years I did not leave the house, I didn't want to, because I thought that the trigger would be strong, even though the problem was not going out, it was just seeing my friends. Some activities like watching TV, playing games can make me not think about the thing. But if we think about it, we will want it. Better to be locked at home." (#12, 24 years, outpatient)

A third participant directly attributed his periodic drug use to his friends and avoided interactions with them since he considered them as a the trigger to his drug relapse.

> "The cause is my friends. I have a friend living in Kuala Lumpur. He invited me to KL so I can try the 'thing' he said. I didn't understand what 'thing' he meant. He challenged me… At first didn't know what it is. He just told me it can solve all my problems… I can stop but it depends on our own self… if I have a problem and think about it too much that what's making me stress until now. Even if just my friends walk past my house the aura will trigger. So now I avoid my friends." (#8, 36 years, outpatient)

Reasons for Enrolling in C&C

Participants were asked about their reasons for voluntarily enrolling in C&C both in the survey and the in-depth interviews. Table 3 shows the various structured responses from the quantitative survey. The top three reasons were: wanting to quit drugs because it was hurting relationships with family and friends (81.3%), hurting their health (67.7%) and hurting their job (66.7%). Interview responses about reasons for enrolling in C&C indicated that fear of relapse was participants' primary concern. In fact, when participants discussed relapse, their major concerns were not physical withdrawal symptoms that might facilitate relapse, but the pressure from friends to start using drugs again.

> "My hope is to not take any more 'stuff'. Let me be healthy till I am old. I hope to stop. I hope to not see my old friends. I worry that I might fall into becoming an addict again. I hope my intentions come true." (#16, 20 years, outpatient)

> "The treatment here is working. Outside I have so many problems, like problems with friends. We are going to fall (get involved) again (with drugs). Living here there is no problem. My hope, I want to live happily with my family, have a normal life like other people… If I have any problem, I will come here, sometime with my

wife. My friends outside, I will give advice. In fact, I can give an explanation if my friends outside ask about drug addiction, by following the steps taught here at the C&C." (#8, 36 years, outpatient)

The following participants discussed how the C&C environment made them feel safe against temptation and discussed their fear of relapse when time came to leave the C&C.

"I think I'm still not strong enough to face the outside world because my friends are all still using drugs and they always talk about drugs. I don't feel strong enough to face all that. I need friends who can support me and I also need support from my family. I need counseling here to help me with this." (#7, 45 years, outpatient)

"I've been here exactly 5 months. I am ready to face the temptations outside. But I'm still worried I might fall to what I was like before. I always have to be careful and remember. And always fill my time with sports and things." (#9, 18 years, outpatient)

DISCUSSION

This mixed methods study among a sample of individuals accessing treatment in the Kota Bharu C&C center is one of the first detailed studies of drug use behaviors in the Malaysia's Kelantan state, near the Thai border. Demographic characteristics of this sample is similar to those of participants from another study in the region that examined attitudes towards OAT among HIV-infected prisoners,[32] suggesting that these new voluntary centers serve a similarly vulnerable population, but with higher ATS use. Importantly, the high prevalence of ATS use among this group may reflect that those individuals with primarily opioid use disorders may have enrolled in OAT elsewhere. Nonetheless, this C&C may serve several purposes, including the only treatment site for patients with problematic ATS use or as an alternative to incarceration for those arrested on drug-related charges who otherwise would have been sent to prison or CDDCs.

From a contextual perspective, this analysis provides important insights into the transformation of CDDCs for Malaysia and elsewhere. Regarding one of the key findings that many of the ATS users were also using opioids – cough syrup and other types that are not injected and may be missed by addiction treatment settings – the addition of onsite OAT has some appeal for treatment and has been successfully implemented in C&C facilities elsewhere in Malaysia. More importantly, however, is that the services provided at this C&C meet a crucial unmet need by provision of therapeutic communities and diverse psychosocial programming that provide the best evidence for amphetamine use disorders. This is especially important since many OAT programs do not provide these additional services. From a broader perspective, both in Malaysia and elsewhere in the region, it may be important to integrate OAT with additional treatment services where both opioid and amphetamine use disorders need simultaneous treatment.

Unlike the HIV prisoners previously surveyed, the proportion in this study with HIV and other medical and psychiatric comorbidities was relatively low. For example, asthma was the most commonly reported chronic medical condition and considering that a third of the sample had recently injected drugs and reported unsafe sex, less than 10% had a diagnosis of

Hepatitis C and HIV. While over half of the participants had previously been incarcerated before coming to the C&C center, the other half had sought treatment in this voluntary treatment setting, well before becoming involved in the criminal justice system (CJS). For those who were CJS-involved, relapse rates were high, regardless of the type of incarceration. The high relapse rates suggest that Malaysia's CJS is inadequately treating substance use disorders for these individuals.[33] On the other hand, the C&C centers offer drug users a holistic rehabilitation program that addresses a number of their treatment needs, including providing OAT.

The primary aim of this study was to examine pre-treatment drug use characteristics and experiences of a sample of patients in the Kota Bharu C&C center. Results indicate high ATS use in this region, likely due to their availability in close proximity to the Thai border, but could also reflect that this treatment facility served an important addiction treatment need for those without opioid use disorders who may have sought treatment elsewhere. The drug profile of the Kota Bharu C&C enrollees is significantly different from a similarly profiled sample of C&C enrollees in the Sungai Besi C&C in Kuala Lumpur, where opioids were observed to be more commonly used.[17] The introduction to drug use through 'cough syrup', an opioid, was learned only through the qualitative interviews and was missed from the structured survey altogether. This suggests that cough syrup might be an important proxy for drug use and for easing withdrawal pain. This needs further investigation especially since cough syrup use has not been empirically observed in any other drug behavior studies in Malaysia and may not be perceived as a treatable condition since cough syrup is traditionally seen as medicinal.

The surveys and in-depth interviews both indicate a high degree of polysubstance use. Several quotes mentioned drug users' transition from one drug to another depending on price and availability. This goes hand-in-hand with supply and demand issues, and alludes to the effect of economic fluctuations on people's drug use behaviors. The drug profile of the Kota Bharu C&C enrollees also shows a high rate of pre-treatment drug injection including high-risk behaviors such as sharing needles, syringes and containers. Despite being in the C&C, some participants engaged in reusing injection paraphernalia. These behaviors carry a high risk and transmission of Hepatitis C and HIV. Thus, C&C centers are appropriate venues to not only provide OAT linked with primary care, but may also serve as needle exchange program sites.

The primary reasons for participants enrolling in C&C had to do with the fear of hurting their friends, family, job and health – all pro-social values. Additionally, unlike the attitudes by many previously detained in CDDC, C&C participants were afraid of relapsing; the worry was not as much about the physical effects of withdrawal but rather about going back to the same friends who helped initiate their drug use. Participants expressed concern about being drug-free after leaving the C&C especially since this involved being part of their old social circles. They recognized that peer networks were strong influencers not only for drug initiation, but also as relapse triggers. Qualitative findings suggest that while peers within the C&C center were primarily health-promoting, participants did not feel safe when cavorting with peers outside the center. It was apparent that many chose to become inpatients in order to remove themselves from community-based peer networks, and for

those who received non-inpatient care, they had to remain involved in day-long activities to reduce contact with the community. Participants attributed their initiation into drug use and subsequent failed attempts to stop their drug use behaviors to peer pressure. Strong triggers for these participants' drug seeking behaviors were daily stressors[34] and the environment where the drug use occurred.[35,36] Participants, upon leaving the C&C, need to be equipped to deal with both types of triggers as they are vulnerable to relapse and overdose in community environments.[37] Through its activities, the C&C attempts to address different kinds of triggers. The C&C center could represent a venue for environmental enrichment[38] to reduce relapse through the incorporation of coping skills,[39] alternative behaviors and creation of new social networks. The pressure to remain drug-free was mainly influenced by family support. Thus, in addition to the various harm reduction practices incorporated by the C&C center, familial and social support-oriented practices should also be integrated into the rehabilitation of drug users.

Overall, the findings from this study show that drug use behaviors vary even within the regions of Malaysia. As more CDDCs are transitioned into the harm reduction models of the C&C centers, it is essential to individualize the drug rehabilitation programs for the types of drug use that are prevalent. In keeping with the incidence of opioid dependence in Kuala Lumpur, the Sungai Besi C&C provides methadone treatment for the majority of its patients. Since the Kota Bharu C&C patient population varies in its drug profile from the Sungai Besi C&C, it is essential to tailor the intervention to address the amphetamine addiction in this region. Currently, the majority of patients in the Kota Bharu C&C are provided with counseling as the primary intervention to address methamphetamine addiction. However, in order to address the multitude of polysubstance abuse and to utilize family support, intervention strategies ought to be augmented so as to positively influence recovery.

Limitations

The participants in this study were recruited from a convenience sample. Although the pre-treatment drug use behaviors observed in this sample are indicative of the regions' drug use patterns, a sample of not-in-treatment drug users would have helped validate this study's results. In order to examine the long-term effect of these innovative harm reduction programs on treatment outcomes, future studies should attempt to incorporate a longitudinal design. Additionally, studies should expand to other C&C sites around Malaysia to provide wider insight into the varying drug use profiles across the region.

Conclusion

The new C&C addiction treatment and harm reduction model presents a paradigm shift in Malaysian drug policy, away from the punitive model of forced detention and rehabilitation. Important here is that it serves an important unmet need for ATS users who otherwise may not have access to treatment. In the absence of such treatment programs, these individuals may not have had any access to treatment for amphetamine use disorders, which until medications are documented to be effective, is often treated using psychosocial and therapeutic community strategies. It is in the best interests of drug users, policy makers and society to adopt evidence-based intervention strategies to combat drug addiction. The results from this mixed method study of pre-treatment drug use behaviors and experiences among

C&C patients provides new information that can help regional C&Cs tailor their drug rehabilitation programs. The success of the C&C model is crucial in heralding a new era of harm reduction strategy in Southeast Asia. Insights from this study may have far-reaching policy implications regarding drug rehabilitation that are provided in voluntary rather than compulsory detention settings.

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Table 1

Socio-demographic characteristics of study sample ($N = 96$)

Characteristics	N (%)
Mean age, years (SD)	28.4 (7.35)
Ethnicity	
Malay	92 (95.8)
Chinese	2 (2.1)
Other	2 (2.1)
Marital status	
Married	22 (22.9)
Widowed	7 (7.3)
Divorced	3 (3.1)
Single	37 (38.5)
Has a sexual partner, but not married	27 (28.1)
Education	
No formal education	1 (1.0)
Primary	7 (7.3)
Lower secondary	23 (24.0)
Higher secondary or higher	57 (59.4)
Higher education	8 (8.3)
Employment	
Mean monthly income in ringitt (M, SD)	702.90 (576.99)
Currently employed	48 (50)
Previously Incarcerated (jail, prison, CDDC)[a]	54 (56.8)
Sexual Risk Behaviors	
Having unprotected sex in the 30 days prior to coming to the C&C	31 (32.3)
Having unprotected sex in the previous 30 days	13 (13.5)
Self-Reported Medical Comorbidities	
Asthma	16 (16.7)
Hepatitis C	9 (9.4)
HIV	7 (7.3)
Tuberculosis	5 (5.2)
Hepatitis B	5 (5.2)
Depression (CES-D)	
No depression	78 (81.3)
Moderate to severe depression	14 (14.6)
Severe depression	4 (4.2)

[a]One person did not respond to the question on previous incarceration

Table 2

Self-reported drug and injection drug use (IDU) behaviors

Lifetime Drug Use[a]	**Overall *N*=96 (%)**	**Inpatients *N*=47 (%)**	**Outpatients *N*=49 (%)**	***p-value***
Opioids (heroin, opium, codeine, pethadine, morphine)	50 (52.1)	26 (55.3)	24 (49)	0.34
Amphetamines (syabu, meth, ice, pil kuda)	86 (89.6)	41 (87.2)	45 (91.8)	0.16
Subutex, suboxone	16 (16.7)	5 (10.6)	11 (22.4)	0.10
Alcohol	58 (60.4)	32 (68.1)	26 (53.1)	0.10
Benzodiazepines	18 (18.8)	8 (17.0)	10 (20.4)	0.44
Ketamine (Vitamin “K”)	7 (7.4)	4 (8.5)	3 (6.1)	0.46
Cannabis	39 (41.5)	22 (46.8)	17 (34.7)	0.12
Ketum	16 (16.8)	13 (27.7)	3 (6.1)	< **0.05**
Drug of Choice				
Opioids	39 (40.6)	18 (38.3)	21 (42.9)	0.24[b]
Amphetamines	55 (57.3)	29 (61.7)	27 (55.1)	
Ketum	1 (1.04)	0 (0)	1 (2.0)	
Alcohol	1 (1.04)	1 (2.0)	0 (0)	
Injection Behaviors[c]				
Ever injected drugs	27 (28.1)	13 (27.7)	14 (28.6)	0.55
Used syringe or needle that participant knew had been used by someone else (30 days prior to coming to C&C)	6 (22.2)	3 (23.1)	3 (21.4)	0.99
Used syringe or needle that participant knew had been used by someone else (last 30 days)	5 (18.5)	2 (15.4)	3 (21.4)	0.54
Injected by pulling drugs into the syringe from a container other people were using (30 days prior to coming to C&C)	10 (37)	4 (30.8)	6 (42.9)	0.40
Injected by pulling drugs into the syringe from a container other people were using (last 30 days)	5 (18.5)	1 (7.7)	4 (28.6)	0.19

[a] Fisher’s Exact Test

[b] Chi-square Test

[c] Chi-square Test

Table 3

Reasons for enrolling in the Cure and Care Center ($N = 96$)

Reasons	N (%)
I wanted to quit drug use because it was hurting my relationships with family and friends.	78 (81.3)
I wanted to quit drug use because it was hurting my health.	65 (67.7)
I wanted to quit drug use because it was hurting my job or occupation.	64 (66.7)
I was able to stop my drug use, and I came here to prevent relapse.	60 (62.5)
My family, friends or employers told or brought me to get treatment here.	37 (38.5)
The workers from the community service shelter or NGO I lived in before suggested me to come here.	19 (19.8)
I needed medical care because I was sick from my drug use.	16 (16.7)
After I was released from PUSPEN, I came here to receive further treatment.	10 (10.4)
I needed methadone treatment, and could not get it anywhere else.	5 (5.2)
I was homeless and needed a place to stay.	2 (2.1)