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Assessment of an Innovative Voluntary Substance Abuse Treatment Program Designed to Replace Compulsory Drug Detention Centers in Malaysia

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Abstract

Background—As part of an ongoing initiative by the Malaysian government to implement alternative approaches to involuntary detention of people who use drugs, the National Anti-Drug Agency has created new voluntary drug treatment programs known as Cure and Care (C&C) Centers that provide free access to addiction treatment services, including methadone maintenance therapy, integrated with social and health services.

Objectives—We evaluated early treatment outcomes and client satisfaction among patients accessing C&C treatment and ancillary services at Malaysia's second C&C Center located in Kota Bharu, Kelantan.

Methods—In June–July 2012, a cross-sectional convenience survey of 96 C&C inpatients and outpatients who entered treatment >30 days previously was conducted to assess drug use, criminal justice experience, medical co-morbidities, motivation for seeking treatment, and attitudes towards the C&C. Drug use was compared for the 30-day-period before C&C entry and the 30-day-period before the interview.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Results—Self-reported drug use levels decreased significantly among both inpatient and outpatient clients after enrolling in C&C treatment. Higher levels of past drug use, lower levels of social support, and more severe mental health issues were reported by participants who were previously imprisoned. Self-reported satisfaction with C&C treatment services was high.

Conclusions/Importance—Preliminary evidence of reduced drug use and high levels of client satisfaction among C&C clients provide support for Malaysia's ongoing transition from compulsory drug detention centers (CDDCs) to these voluntary drug treatment centers. If C&C centers are successful, Malaysia plans to gradually transition away from CDDCs entirely.

Keywords

Asia; addiction treatment; compulsory drug detention centers; drug policy; harm reduction; Malaysia

Across Asia, people who use drugs can without due process be forcibly placed into compulsory drug detention centers (CDDC), which have continued to grow significantly throughout the region (UNODC, ESCAP, & UNAIDS, 2012). As of 2012, there were an estimated 435,000 people detained in over 1,000 CDDCs throughout Southeast and East Asia (Lewis, 2012), with increasing numbers being detained (Kamarulzaman & McBrayer, 2015). CDDCs have been criticized for a variety of human rights abuses including extrajudicial and indefinite detention, physical abuse and torture of detainees, and the denial of or inadequate provision of medical care (Amon, Pearshouse, Cohen, & Schleifer, 2013; Fu, Bazazi, Altice, Mohamed, & Kamarulzaman, 2012). Given these abuses, in 2012 the Human Rights Watch and other international agencies called for the closure of all CDDCs immediately (Amon et al., 2013). Subsequently, 12 UN agencies released a joint statement calling for immediate action to close CDDCs and replace them with evidence-based treatments compatible with upholding human rights (United Nations, 2012). In recent years, two countries, including Malaysia, have begun this transition (Tanguay et al., 2015) but empirical data on the successes of new treatment alternatives are not yet available.

As part of the national statutes, people who use drugs in Malaysia are detained in CDDCs for a minimum two-year mandatory detention (World Health Organization, 2009). These CDDCs are operated by the Malaysian National Anti-Drug Agency (AADK), under the Ministry of Home Affairs, which is the security ministry of the government that also oversees the police and prisons department. This governmental agency detains individuals involuntarily in places where they are largely denied access to evidence-based treatment for substance use disorders and health-related co-morbidities despite especially high need (Fu et al., 2012). HIV prevalence in Malaysia's CDDCs approaches 10% (Ministry of Health, 2008), which is higher than the 6% reported among prisoners (UNGASS, 2010; Zahari et al., 2010), and 24-fold higher than the 0.41% HIV prevalence in the community (Malaysia Ministry of Health, 2012). Moreover, relapse to drug use among individuals released from CDDCs in Malaysia approaches 70–90% within one year post-release (Open Society Institute, 2010; Reid et al., 2007; World Health Organization, 2009).

Beginning in 2006, however, as part of the "1Malaysia" governmental initiative, the Malaysian government began to shift many of its punitive policies to ones expanding

evidence-based methadone maintenance treatment (MMT) and harm reduction programs (Kamarulzaman, 2009) across the country to reduce HIV infections (World Health Organization & Ministry of Health Malaysia, 2011) and expand treatment (Huong, Guan, Nordin, Adlan, & Habil, 2009). Malaysia's shift of drug policies focused on introducing and improving access to harm reduction programs for people who use drugs (Kamarulzaman, 2009; Mahmood, 2008; Reid, Kamarulzaman, & Sran, 2007). In recognition of the ineffective treatment and lack of health-related services provided in Malaysia's CDDCs (Fu et al., 2012), the AADK aligned its policies with other national policies in 2010 and began to replace 10 of its 28 CDDCs with voluntary drug treatment programs that provide an array of integrated services and were named Cure and Care (C&C) Centers (Fu et al., 2012). Despite these efforts, 6,658 people remained detained in CDDCs in Malaysia in 2010 (Fu et al., 2012). In the remaining 18 CDDCs that were not yet transitioned to C&Cs, 5,035 detainees continued to be subjected to "cold turkey" detoxification (AADK, 2011) and lacked access to evidence-based methadone treatment.

For those 10 CDDCs that have successfully transitioned to voluntary treatment centers, the replacement involved closing the CDDCs and converting their physical spaces to voluntary C & C centers. In order to attract clients to sites previously viewed negatively by the community as repressive, these new forms of voluntary treatment and rehabilitation programs at the C&Cs introduced a wide range of services to meet the health and social needs of people who use drugs, including provision of medication-assisted treatment (MAT) for opioid dependence with MMT (Ghani et al., 2015). Two of the principles underlying this new model of care are that the complexity of drug dependence requires that a wide array of evidence-based interventions be offered and that individualized and holistic care is necessary to reduce the risk for relapse. To that end, C&C centers now provide an array of services alongside MAT, including some onsite medical care (Al-Darraji et al., 2014) as well as rehabilitative activities that may include MAT, psychosocial interventions, religious/spiritual programs, psychiatric counseling, recreational activities (group games, hiking trips, artistic activities, dance and musical therapy), and vocational training provided in both group and one-on-one sessions (Ghani et al., 2015; Krishnan et al., 2016). After undergoing a comprehensive intake by trained C&C counseling staff, patients select which activities may be most relevant to their situation based on type and severity of addiction and social and legal situation.

AADK opened its first C&C site near Kuala Lumpur in Sungai Besi and its second site in October 2010 in Kota Bharu (Ghani et al., 2015; Krishnan et al., 2016), the capital of the conservative northeastern state of Kelantan. Despite high rates of stimulant use reported in this region (UNAIDS & WHO, 2004), there are limited data on people who use drugs in this region, and particularly on treatment outcomes among stimulant users accessing treatment in Malaysia. Since limited drug treatment outcome data are available from these newly opened C&C Centers, and given that knowledge about stimulant use and other drug use in this region in Malaysia is limited, we describe in this paper self-reported drug use behaviors and satisfaction with treatment services among a sample of individuals accessing treatment at Kota Bharu's C&C center.

Methods

Study setting and sample

This study was conducted in Kota Bharu's C&C that provides voluntary and comprehensive drug treatment focusing on evidence-based treatments and harm reduction strategies. This C&C was converted in October 2010 from a CDDC for women that operated from 2005 to 2010. At the time of the study in July 2012, the facility had capacity for housing 50 inpatients across its two dormitories and was providing ongoing ambulatory treatment to 684 outpatients. The facility also had approximately 20 employees, including one nurse, one psychologist, and one pharmacist, but no onsite physician. Each participant completes a comprehensive intake process, which is conducted by a trained counselor, in order to determine whether they will enroll as an inpatient or an outpatient at the clinic based on several factors, including addiction severity, type of drug, and social (e.g., homelessness) and legal status.

Over a 6-week period in summer 2012, a convenience sample of 96 patients who had received over 30 days of inpatient and/or outpatient services were interviewed at the C&C. All inpatients meeting the minimum inclusion criteria at the C&C during the study period participated in the study. Outpatient recruitment was conducted by C&C staff and included outpatients who indicated availability and interest in participation during the study period. Inclusion criteria for participation included being 18 years or older and having been an inpatient or outpatient at the facility for over 30 days. Advertising for study participation was coordinated by C&C staff and referrals were made only to trained research assistants at the treatment center. Those who were eligible and interested in participating were led through the informed consent process by research staff.

The informed consent involved provision of consent for both the questionnaire portion of the study as well as for a medical chart review. Consenting participants were informed that their records would be reviewed, including their regular urine drug toxicology testing. Though urine testing data was incomplete, we stated this to reduce under-reporting of drug use and minimize social desirability responses. All interviews were confidential and conducted in a private room by trained research assistants in Bahasa Malaysia. Research assistants were affiliated with SAHABAT, a local NGO that operates syringe exchange programs in the community, and had extensive knowledge regarding addiction and harm reduction, particularly in relation to the local context. All individuals received RM30 Malaysian *ringgit* (approximately $10) for their participation in the study. A convenience sample of 47 out of 50 total inpatients and 49 out of 684 total outpatients who met the minimum inclusion criteria was surveyed.

Study measures

Survey content included sociodemographic information, motivations for seeking treatment at the C&C, criminal justice and drug use history, medical comorbidities (TB, HIV, and sexually transmitted infections other than HIV), sexual and drug use risk behaviors, mental health status, and attitudes towards the C&C both prior to initiating treatment and within the last 30 days prior to survey enrollment (Harkness, Pennell, & Schoua-Glusberg, 2004;

Smith, 2004). Depression symptomatology was assessed using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). Addiction severity and its associated subscales were assessed using the Addiction Severity Index (ASI), (McLellan et al., 1992; Rosen, Henson, Finney, & Moos, 2000). Gelberg's scale was used to assess access to basic needs such as food, shelter, clothing, and clean water (Ganzini, Smith, Fenn, & Lee, 1997). The Sherbourne and Stewart Medical Outcomes Study (MOS) scale, a continuous standardized scale, was used to measure social support by assessing how often there might be people in the participant's life to provide companionship, assistance, or other types of social support (Shelbourne & Stewart, 1991; Sherbourne & Stewart, 1991). Participant satisfaction with C&C services and participant confidence in C&C treatment were assessed using a Likert scale ranging from 1 (not at all satisfied/confident) to 5 (very satisfied/confident) and were stratified by inpatient or outpatient status. Additional supplemental questions focused specifically on experiences with MMT and HIV treatment, and were asked only of those patients who had received MMT or who self-reported being HIV-infected, respectively. The survey was constructed in English, translated into Bahasa Malaysia, and then back-translated to ensure accuracy of intended meaning (Brislin, 1970; Harkness et al., 2004; Smith, 2004). The survey was pilot-tested to ensure understanding of the questions.

Data analysis

Data analysis was conducted using SPSS, version 19 (IBM Corporation, United States). A *p*-value <.05 was considered statistically significant. For analysis of self-reported drug use, select drugs listed on the questionnaire were consolidated into three categories: (1) *opioids*—heroin, opium, codeine, pethadine, morphine; (2) *amphetamine*s—pilkuda, syabu, meth, ice; and (3) illicit *subutex/suboxone*. Analyses were stratified based on previous criminal justice system (CJS) involvement (prior detention in either police lock-up, CDDC or prison) and by inpatient and out-patient treatment experiences. Stratification by prior detention was justified because CJS involvement is associated with higher addiction severity. Stratification by inpatient and outpatient status was conducted to determine major differences between types of patients (and their drug use) and to identify characteristics of patients who might benefit from one service over the other. Independent samples *t*-tests were conducted to determine if significant differences existed in health outcomes between participants with previous interactions with the criminal justice system (CJS) and those who had not. Paired sample *t*-tests were conducted to determine if there was a reduction in drug use after enrollment in the C&C, specifically for amphetamines, opioids, and subutex/suboxone.

Results

Descriptive statistics

Table 1 provides comprehensive descriptive information and drug use characteristics for all participants and stratifies them by whether or not they were previously detained. All participants were male, predominantly Malay (95.8%) and unmarried (87.1%); over half had been previously detained (54.8%). Those previously detained were significantly more likely than their never previously detained counterparts to be older, have previously been tested for HIV ($p < .05$) and self-report being HIV-positive ($p < .05$) (Table 1). Nearly 90% of the

overall sample reported having used amphetamines at least once during their lifetime; this did not differ significantly based on history of CJS involvement. Drug of choice differed based on previous detention status. While participants with previous CJS involvement reported opioids as their drug of choice (61.1%) followed by amphetamines (pilkuda), participants with no previous CJS involvement mostly reported amphetamines (pilkuda) (85.4%) as their drug of choice followed by opioids (Table 1). Table 2 provides information about drug use characteristics of participants stratified by inpatient and outpatient treatment status. Inpatients and outpatients did not significantly differ in lifetime drug use and injection drug use except for ketum; more inpatients reported having used ketum compared to outpatients ($p < .05$). Amphetamines, specifically pilkuda, were reported as the drug of choice regardless of inpatient versus outpatient treatment status, followed by opioids.

Health and social implications of criminal justice history

Over half of the sample (54.8%) had experienced detentions at one of the three types of facilities (police lock-up, prison, and CDDC) prior to enrollment at the C&C. These participants had experienced on average 3.6 detentions. Participants who had been previously detained had significantly more depressive symptoms ($M = 11.5$, $SD = 9.49$) than participants who had never been detained ($M = 6.73$, $SD = 4.88$) at $t(83) = 3.18$, $p < .01$) and significantly less social support ($M = 3.73$, $SD = 0.75$) than participants who had never been detained ($M = 3.99$, $SD = 0.49$). Lifetime drug use also differed based on detention history; those who had been previously detained were significantly more likely to have used opioids ($p < .001$), alcohol ($p < .05$), and cannabis ($p < .01$). In addition, they were also significantly more likely to have reported prior drug injection ($p < .01$). Aside from previously CJS-involved participants reporting significantly higher use of opioids ($p < .05$), recent drug use in the 30-day period prior to enrolling in the C&C for treatment did not differ significantly for participants based on detention status.

Effect of C&C enrollment on drug use

Table 3 compares drug use, specifically for amphetamines, opioids, and subutex/suboxone, both before and after C&C enrollment. Among the participants who reported using amphetamines (88.5%), there was a statistically significant decrease in the mean number of days in a 30-day period in which amphetamines were used (9.24 versus 0.84 days, $p < .001$). Similarly, among opioid users, opioid use also decreased significantly (20.24 days versus 0.84 days, $p < .001$). This association persisted even after stratifying the sample by inpatient and outpatient status, as shown in Table 3.

Attitudes toward the C&C

The primary motivations reported by participants for seeking treatment at the C&C was to avoid damaging relationships with friends and family (46%), avoid personal negative health consequences (14%), avoid jeopardizing one's job or occupation (13%), prevent relapse into drug use (7%), and to obtain concomitant medical care for their drug use (2%). Table 4 reflects various levels of satisfaction with C&C services as well as various levels of confidence in ability to stay away from drugs both at the time of the survey and in the future. Satisfaction and confidence levels were reported using a Likert scale ranging from 1 (not at all satisfied/confident) to 5 (very satisfied/confident) and were stratified by inpatient or

outpatient treatment status. Participants reported high overall satisfaction with services provided by C&C staff ($M = 4.53$, $SD = 0.65$), but lower satisfaction with assistance in obtaining medical care for HIV ($M = 2.32$, $SD = 1.59$) and mental health care ($M = 2.19$, $SD = 1.47$). Confidence in staying away from drugs presently ($M = 3.48$, $SD = 1.49$) and in the future after leaving the C&C ($M = 3.74$, $SD = 1.35$), overall, was high. Inpatients, however, reported significantly greater satisfaction than outpatients for a variety of C&C services including learning job skills; having a place to live; staying out of prison, police lock up, or a CDDC; and obtaining medical care for illnesses other than HIV. Outpatients, however, reported significantly greater satisfaction with obtaining methadone treatment.

Discussion

To our knowledge, this is the first assessment of reductions in drug use as well as of satisfaction and experiences of clients accessing treatment at the newly created C&C Centers. The C&Cs are voluntary drug treatment programs in Malaysia but they were established by the same government ministry that is responsible for criminal justice supervision of drug users (i.e., the police and CDDCs) and interdiction of narcotics. Until 2006 with the introduction of harm reduction programs using needle/syringe exchanges and MMT (Kamarulzaman, 2009), drug use has historically been addressed through punitive policies and measures centered on incarcerating or detaining people who use drugs. Overall, the C&C centers represent a novel and potentially beneficial new framework for addressing substance abuse in Malaysia, where drug use is rampantly associated with high risk for HIV (UNAIDS, 2014). Recent data comparing methadone treatment in a C&C versus being in a CDDC showed that patients released from a CDDC were significantly more likely to relapse to opioid use, especially soon after release, confirming the importance of voluntary treatment in C&Cs to treat opioid dependence (Wegman et al., 2017).

Recent qualitative (Ghani et al., 2015) and mixed methods (Krishnan et al., 2016) research has described satisfaction with the various components of the new C&Cs (e.g., psychosocial counseling, recreational and vocational training activities, staffing and social support, healthcare access and utilization and religious instruction). Now the quantitative findings of this study are the first empirical insights into the impact of these relatively new evidence-based drug treatment strategies in Malaysia, as the country begins to transition away from CDDCs toward voluntary treatment for people with substance use disorders. Though not a contemporaneous sample, the demographic of study participants at the C&C is remarkably similar to the demographic of participants recruited in a prison in Kota Bharu for a study that assessed attitudes towards opioid agonist treatments like methadone (Bachireddy et al., 2011), suggesting that the latter is a population arrested on drug-related charges who might have accessed C&C services had they been available as a potential alternative or diversion program to detention in prison or CDDC.

In contrast to other new harm reduction programs in Malaysia, the Kota Bharu C&C provides services mostly for drug users who do not inject and for amphetamine users. This C&C also appears to attract a distinct demographic of individuals who have never previously interfaced with the CJS and have never been detained, which provides great promise as a means to attract more people who use drugs into evidence-based treatment. These

individuals are markedly younger and are using distinctly different drugs than those found in other treatment settings. Their patterns of drug use have not yet progressed to injection and thus C&C programs provide a unique opportunity for identifying and engaging young people who use drugs and may have substance abuse disorders earlier in their drug using career through providing acceptable voluntary, evidence-based drug treatment. C&Cs thus represent a drastic departure from existing proscriptive policies in Malaysia. If C&Cs are adequately expanded and supported, this study provide insights into the future transition of existing proscriptive programs to harm reduction models more broadly.

Though not the focus of this study initially, comparing individuals with and without CJS involvement provides insights into future drug treatment and ancillary service needs. First, prior to the opening of the C&C, aside from CDDCs (and eventual imprisonment when individuals failed these programs), free and publicly-funded voluntary drug treatment did not exist in Malaysia. Therefore for those individuals without financial resources to pay for private treatment (which is not universally available), the typical trajectory for people who use drugs was police arrest followed by mandatory 2-year detainment in CDDCs. Subsequent interfaces with police, an arm of the AADK, then resulted in imprisonment, often for prolonged periods of time. This in part, explains the significant differences in age between our CJS-involved and uninvolved groups. There is also considerable comedical and psychiatric comorbidity in the CJS-involved population among both inpatient and outpatient groups seeking voluntary treatment. Integrating treatment services at earlier stages of drug use may not only effectively prevent drug relapse but also maximize healthcare access and delivery for such vulnerable patient populations. This C&C appears to provide an important opportunity to intervene with younger drug users before they become engaged with future CJS-involvement and before they might become HIV-infected. Those with previous CJS-involvement were significantly more likely to have been HIV tested, likely due to exposure to settings where HIV testing is mandatory. Given the elevated risk for HIV among people who use drugs, our findings suggest that integrating voluntary HIV testing into standard healthcare delivery provided in drug treatment settings (Chadwick, Andrade, Altice, & Petry, 2014; Metsch et al., 2012) like the C&C centers would enhance HIV prevention efforts. Thus, providing an array of integrated services (e.g., addiction treatment, medical and psychiatric care, and harm reduction services) is a multi-pronged approach to engage and interface with younger patients earlier in their drug use career and reduce the severe detrimental consequences associated with continued drug use. This multi-pronged approach is essential for service delivery to the target stigmatized patient population, given that they generally have low utilization of health promoting services due to intense negative feelings of healthcare providers and intentions to discriminate against people who use drugs in Malaysia (Earnshaw et al., 2014; Jin et al., 2014).

Over half of the participants had previously been detained before coming to the C&C, and had been repeatedly detained, primarily for drug-related activities. The chronic relapsing nature of addiction and participants' repeated interactions with the criminal justice system (CJS) suggest that this group likely had higher addiction severity. The high levels of repeated interactions with the CJS suggests that these participants have had frequent contact with systems ill-equipped to address their substance use disorders (Maru, Basu, & Altice, 2007) and insufficient interaction with voluntary community-based treatments. This supports

a shift toward improving the presence and accessibility of voluntary treatment programs like C&Cs as an alternative to detention.

Study results demonstrated positive significant associations between having CJS involvement and low mental health status, low levels of social support, and an increase in the number of depressive symptoms. Many prior studies have shown that detention and incarceration disrupt social support systems, such as family and friend networks, by creating isolation between those who are detained and the rest of their community (Maru et al., 2007). This disruption of social support has been found to be associated with higher rates of drug use, greater engagement in sexual risk behaviors, and consequently higher rates of HIV infections (Thomas, 2006; Wallace, 1993). The long-term effects of past CJS involvement among current patients at the C&C have yet to be characterized, but should be studied to guide future efforts to improve treatment viability and success in these settings. Understanding the impact of CJS detentions will also inform efforts to ensure intervention efficacy for people who use drugs and promote better health and social outcomes.

They types of drugs used varies markedly in Malaysia (Chawarski, Vicknasingam, Mazlan, & Schottenfeld, 2012; Singh, Chawarski, Schottenfeld, & Vicknasingam, 2013), with higher levels of amphetamine-type stimulants (ATS) used in areas near the Thai border and in the two Malaysian states on Borneo. While opioids are the primary drug used by C&C clients near Kuala Lumpur (Al-Darraji et al., 2014), ATS is much more common at the C&C in Kota Bharu. Since medication-assisted therapies are not routinely available for the treatment of amphetamine-use disorders (Altice, Kamarulzaman, Soriano, Schechter, & Friedland, 2010), this in part justifies the use of counseling-based strategies as the primary intervention to address amphetamine addiction. Initial findings from this study indicate that the C&C has had success in decreasing active drug use among patients engaged in its services, particularly for opioid and amphetamine users. Most importantly, it should be noted that both inpatient and outpatients reported similarly significant reductions in their drug use, especially for opioids and amphetamines, suggesting that C&Cs benefit both of these groups receiving care, regardless of their contrasting living environments and consequent logistical differences with respect to drug access.

There was a high level of overall satisfaction with the C&C, though improvements in service delivery are needed in other key areas where reported patient satisfaction was not as high, including providing job skills training. The C&C, however, did receive high satisfaction ratings for healthcare services provided for both addiction and other non-addiction health issues. The C&C also received high satisfaction ratings for reducing drug craving (often associated with relapse) and for promoting better family relationships. Though reported satisfaction levels were highest specifically for addiction treatment, the high levels of medical and psychiatric comorbidity suggest the need to integrate more comprehensive services into the C&C in order to optimize health outcomes (Bachireddy et al., 2014; Haddad, Zelenev, & Altice, 2015; Sylla, Bruce, Kamarulzaman, & Altice, 2007).

Overall, the results of this study serve as preliminary evidence demonstrating that patients are accessing not only addiction treatment, including methadone maintenance therapy, but also health and social services at newly created C&C centers in Malaysia, and they are

reporting general satisfaction with these services. Based on participants' assessments, key areas that have room for improvement at the C&C include expanded medical services like HIV and mental health care. In addition, while participants report satisfaction with the C&C's role in improving relationships with family and friends, participants may benefit even more from being able to access job skill training to ease the process of reintegration into the community upon discharge from the C&C center. Future studies should evaluate service delivery in a more comprehensive manner to inform ongoing efforts to ensure that C&Cs more comprehensively meet the complex needs of people who use drugs seeking care and validate the complete replacement of CDDCs with C&C harm reduction programs all over Malaysia and elsewhere in the world.

The expansion of harm reducing, evidence-based drug treatment programs throughout Malaysia and the entire region, is critical to improving the health of people who use drugs by reducing barriers to healthcare for this vulnerable population. In addition, in regions where detention rates are high and TB and HIV prevalence among detained people is high, diversion of drug users to harm reduction treatment programs from the criminal justice system will not only reduce overall detention rates but also ultimately serve to improve the national and regional response to epidemics of infectious diseases in Southeast and East Asia.

Limitations

All participants were recruited as a convenience sample from a single site, which limits the generalizability of this study's findings. It nonetheless provides unique insights into this C&C site located in the conservative northeast state of Kelantan, which is near the Thai border, and provides unique insights for providing addiction treatment in this region of the country. A random sample may have provided a more comprehensive assessment of satisfaction as well as addiction treatment and health outcomes from the C&C treatment. Nearly all (94%) of the 50 inpatients agreed to participate, while the number of participants in the recruited convenience sample of outpatients represented only 7% of the 684 total outpatients. All participants surveyed were currently actively engaged in treatment so it was not possible to collect data for patients who may have left treatment prematurely or were no longer in treatment at the time of the survey. Another limitation was the lack of inclusion of objective measures of drug use. Though urine drug testing data was collected to minimize social desirability bias, this data ended up being incomplete and was not able to be included in the analysis. Future studies should deploy a longitudinal design in order to follow participants throughout the duration of their treatment to clearly elucidate the potential causal impact of the addiction treatment and harm reduction services on long-term treatment outcomes. Additional studies should more extensively survey patients from C&C sites throughout the entire country to gain a more comprehensive understanding of how these programs are operating nationally. Notwithstanding these limitations, however, this study is among the first to assess these new centers and provides important regional insights into program service delivery and treatment outcomes.

Conclusions

CDDCs have been justifiably criticized for their failure to provide evidence-based addiction treatment and care necessary to meet the needs of people who use drugs. In contrast, the introduction of the new Cure & Care model has been recognized for its “open” position by an array of world organizations that remains anxiously optimistic that the quality and quantity of services provided by C&Cs will be affirmed. Preliminary findings from this study on the C&C Center in Kota Bharu provide some empiric validation for the continued expansion of these novel addiction treatments and harm reduction programs in the region. No previously published studies have quantitatively described the clientele, the services provided, or any relative substance abuse treatment outcomes for this facility. This study therefore fills an important gap in providing guidance on how to effectively expand the C&C model. The C&C model transforms the anachronistic compulsory drug detention centers in this region to more holistic voluntary addiction treatment programs that make strides toward reducing the scourges of addiction and improving the health of people who use drugs in Malaysia and throughout the region.

Though there is a movement to shift away from CDDCs towards harm reduction practices for addressing substance abuse, only 10 of the 28 CDDCs that were operational in 2010 had been transformed to C&C Centers by 2012 when this study was completed (Fu et al., 2012). While a few new C&C sites have since opened, there remains considerable room for further transition. Ultimately, sufficient data must emerge from the newer rehabilitation programs to support Malaysia’s expansion of the C&C program and encourage a complete repeal of CDDCs by the Malaysian government.

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Table 1

Participant characteristics and drug use behavior stratified by previous criminal justice system (CJS) involvement ($N = 960$).[a]

Characteristics	Entire sample $N = 96$ (%)	Has past CJS involvement $N = 54$ (%)	No past CJS involvement $N = 41$ (%)	*p*-value
Mean age (in years)	28.4	31.37	24.39	< **.001**
Male	96 (100)	54 (56.3)	41 (42.71)	
Ethnicity				.96
Malay	92 (95.8)	52 (96.3)	39 (95.1)	
Chinese	2 (2.1)	1 (1.9)	1 (2.4)	
Other	2 (2.1)	1 (1.9)	1 (2.4)	
Marital status				.13
Married	22 (22.9)	11 (20.4)	11 (26.8)	
Widowed	7 (7.3)	6 (11.1)	1 (2.4)	
Single	37 (38.5)	22 (40.7)	14 (34.1)	
Have a partner, but not married	27 (28.1)	12 (22.2)	15 (36.6)	
Education				.75
Primary	7 (7.3)	3 (5.6)	3 (7.3)	
Lower secondary	23 (24.0)	12 (22.2)	11 (26.8)	
Higher secondary or higher	57 (59.4)	34 (63)	23 (56.1)	
Higher education	8 (8.3)	5 (9.3)	3 (7.3)	
Employment				
Mean monthly income (RM)	702.90	700.38	706.10	.96
Currently employed	48 (50)	24 (44.4)	24 (58.5)	.22[b]
Mean time in C&C in days	287	336.7	226.1	.07
Self-reported Medical Comorbidities[b]				
Asthma	16 (16.7)	8 (14.8)	8 (19.5)	.59
Hepatitis C	9 (9.4)	8 (14.8)	1 (2.5)	.07
HIV	7 (7.3)	6 (11.1)	1 (2.5)	< **.05**
Tuberculosis	5 (5.2)	5 (9.3)	0 (0)	.07
Hepatitis B	5 (5.2)	5 (9.3)	0 (0)	.07
Depression	3 (3.2)	2 (3.8)	1 (2.4)	.50
Ever received an HIV test	82 (85.4)	50 (92.6)	31 (75.6)	< **.05**
Substances used at least once during lifetime[b]				
Opioids (heroin, opium, codeine, pethadine, morphine)	50 (52.1)	41 (75.9)	8 (19.5)	< **.001**
Amphetamines (syabu, meth, ice, pilkuda)	86 (89.6)	47 (87)	39 (95.1)	.29
Subutex, suboxone	16 (16.7)	13 (24.1)	3 (19.5)	.05
Alcohol	58 (60.4)	38 (70.4)	19 (46.3)	< **.05**
Benzos, dormi, somise, clona, apoten, valium, xanax, stilnos, eramin	18 (18.8)	14 (25.9)	4 (9.8)	.06
Ketamine (Vitamin “K”)	7 (7.4)	6 (11.3)	1 (2.4)	.13
Cannabis	39 (41.5)	29 (54.7)	10 (24.4)	< **.01**

Characteristics	Entire sample *N* = 96 (%)	Has past CJS involvement *N* = 54 (%)	No past CJS involvement *N* = 41 (%)	*p*-value
Ketum	16 (16.8)	11 (20.8)	4 (9.8)	.17
Drug of Choice				
Opioids (heroin, opium, codeine, pethadine, morphine)	39 (48.6)	33 (61.1)	5 (12.2)	
Amphetamines (syabu, meth, ice, pilkuda)	56 (58.3)	21 (38.9)	35 (85.4)	
Alcohol	1 (1.04)	0 (0)	1 (2.44)	
Has ever injected drugs[b]	27 (28.1)	22 (40.7)	4 (9.8)	< **.01**
Mean number of days that substances were used in 30 days prior to coming to C & C[b,c]				
Opioids (heroin, opium, codeine, pethadine, morphine)	20.24	20.84	17.57	.56
Amphetamines (syabu, meth, ice, pilkuda)	9.24	8.32	10.37	.43
Subutex, suboxone	4.06	2.69	10.0	.54
Alcohol	2.97	2.26	4.53	.27
Benzos, dormi, somise, clona, apoten, valium, xanax, stilnos, eramin	4.56	3.43	8.50	.35
Ketamine (Vitamin “K”)	5.29	5.00	7.00	.83
Cannabis	0.69	0.66	0.80	.83
Ketum	4.19	2.73	8.50	.57
Mean number of days that substances were used in the past 30 days[b,c]				
Opioids (heroin, opium, codeine, pethadine, morphine)	0.84	1.03	0.00	< **.05**
Amphetamines (syabu, meth, ice, pilkuda)	0.84	1.36	0.18	.11
Subutex, suboxone	0.00	0.00	0.00	
Alcohol	0.14	0.08	0.26	.33[d]
Benzos, dormi, somise, clona, apoten, valium, xanax, stilnos, eramin	0.00	0.00	0.00	
Ketamine (Vitamin “K”)	1.00	1.17	0.00	.65 [d]
Cannabis	0.00	0.00	0.00	

Boldface indicates *p*-values that are statistically significant.

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

[b] Significance value was based on Fisher’s Exact Test.

[c] The mean number of days was only calculated for those who reported using these drugs during that time period.

[d] Significance could not be computed.

Table 2

Drug use characteristics stratified by inpatients and outpatients ($N = 96$).

Characteristic	Inpatients $N = 47$	(%) Outpatients $N = 49$ (%)	p-value
Mean time in C&C in days	176.9	392.7	**< .01**
Substances used at least once during lifetime[a]			
Opioids (heroin, opium, codeine, pethadine, morphine)	26 (55.3)	24 (49)	.34
Amphetamines (syabu, meth, ice, pilkuda)	41 (87.2)	45 (91.8)	.16
Subutex, suboxone	5 (10.6)	11 (22.4)	.10
Alcohol	32 (68.1)	26 (53.1)	.09
Benzos, dormi, somise, clona, apoten, valium, xanax, stilnos, eramin	8 (17.0)	10 (20.4)	.44
Ketamine (Vitamin “K”)	4 (8.5)	3 (6.1)	.46
Cannabis	22 (46.8)	17 (34.7)	.12
Ketum	13 (27.7)	3 (6.1)	**< .05**
Drug of choice			
Opioids (heroin, opium, codeine, pethadine, morphine)	18 (38.3)	21 (42.9)	
Amphetamines (syabu, meth, ice, pilkuda)	29 (61.7)	27 (55.1)	
Alcohol	0 (0)	1 (2.0)	
Has ever injected drugs	13 (27.7)	14 (28.6)	.55

Boldface indicates p-values that are statistically significant.

[a]Significance value was based on Fisher’s Exact Test.

Table 3

Difference in number of days of drug use between 30 days prior to enrollment at C&C and 30 days prior to study enrollment ($N = 96$).

Type of drug used	*N* (%)	30 days prior to C&C enrollment *M(SD)*	30 days prior to study enrollment *M(SD)*	*P*
Overall sample ($N = 96$)				
Opioids	38 (39.5)	20.24 (13.28)	0.84 (2.42)	**< .001**
Amphetamines	85 (88.5)	9.24 (11.83)	0.84 (3.68)	**< .001**
Subutex/suboxone	16 (16.7)	4.06 (10.16)	0.00 (0.00)	.131
Inpatients ($N = 47$)				
Opioids	17 (36.2)	17.88 (13.77)	1.12 (3.16)	**< .001**
Amphetamines	41 (87.2)	10.76 (12.31)	1.05 (4.90)	**< .001**
Subutex/suboxone	5 (10.6)	6 (13.42)	0.00 (0.00)	.37
Outpatients ($N = 49$)				
Opioids	21 (42.9)	22.14 (12.87)	0.62 (1.66)	**< .001**
Amphetamines	44 (89.8)	7.82 (11.32)	0.64 (2.01)	**< .001**
Subutex/suboxone	11 (22.4)	3.18 (8.95)	0.00 (0.00)	.27

Boldface indicates *p*-values that are statistically significant.

Table 4

Difference between inpatients and outpatients on attitudes towards C&C services.

	Inpatients ***M(SD)***	**Outpatients** ***M(SD)***	***p***
How helpful has the C&C			
Center been to you to in terms of…			
General living			
Find/keep a job or stable source of income	2.67 (1.49)	2.33 (1.57)	.31
Learn skills for job	3.76 (1.42)	2.51 (1.65)	< **.001**
Have a place to live	4.45 (0.97)	2.83 (1.75)	< **.001**
Stay out of prison or lock up	3.60 (1.69)	2.15 (1.73)	< **.01**
Stay out of CDDC	3.59 (1.72)	2.32 (1.79)	< **.05**
Access to medical care			
Obtain treatment with methadone for drug addiction	3.85 (1.53)	4.64 (0.86)	< **.05**
Obtain medical care for illnesses other than HIV	4.17 (1.19)	3.32 (1.59)	< **.05**
Obtain medical care for HIV	2.75 (1.67)	2.07 (1.54)	.34
Obtain mental health care	2.61 (1.56)	1.79 (1.29)	.06
Drug craving			
Reduce craving for drug use	4.63 (0.83)	4.50 (0.86)	.46
Overall satisfaction with services provided by C&C staff	4.62 (0.64)	4.45 (0.65)	.20
Confidence in staying away from drugs at the moment	3.60 (1.49)	3.37 (1.48)	.46
Projected confidence in staying away from drugs after leaving the C&C	3.79 (1.30)	3.69 (1.40)	.74

Boldface indicates *p*-values that are statistically significant.