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# Attitudes And Beliefs Towards Medication-Assisted Treatment (mat) For Substance Dependence And Abuse Among Fishermen In Eastern Malaysia: Determining Barriers And Facilitators To Mat Scale-Up

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## **Attitudes and Beliefs Towards Medication-Assisted Treatment (MAT) for Substance Dependence and Abuse Among Fishermen in Eastern Malaysia: Determining Barriers and Facilitators to MAT Scale-Up**

### INTRODUCTION

Injection drug use is a major public health problem in Malaysia. The country has one of the highest rates of injection drug use in the world (Mathers et al., 2008). In an analysis of data from the 148 countries in which injection drug use data is available, only Mauritius had a higher rate of injection drug use. These high rates of injection drug use have had serious consequences.

More than two-thirds of HIV cases in Malaysia have been associated with injection drug use since the start of the epidemic (Bergstrom, Kamarulzaman, Khalib, & Kah Sin, 2012).

According to UNAIDS, the prevalence of HIV/AIDS among Malaysian injecting drug users is 8.7% (Suleiman, 2012), and recent studies of Malaysian injection drug users have documented rates of HIV ranging from 19.2% (Chawarski, Mazlan, & Schottenfeld, 2006) to 43.9% (B. Vicknasingam, Narayanan, & Navaratnam, 2009). While the percentage of new cases of HIV caused by injection drug use has recently fallen in Malaysia as a whole (Bergstrom et al., 2012), in the state of Pahang, where this study was situated, injection drug use is responsible for the vast majority of new HIV infections. Over 80% of new cases of HIV in Pahang were associated with injection drug use in 2011 (Suleiman, 2012).

There is a special need for a better understanding of potential responses to the epidemic of injection drug use and HIV amongst Malaysian fishermen. Experts have described Asian fisherfolk (a population of 29 million) as an enormous, understudied HIV risk group (Allison & Seeley, 2004). HIV rates in Malaysian fishing communities are 10 times that of the general

population (Kissling et al., 2005). In 2008 the Malaysian Ministry of Health reported that fishing was the second most common work category for people with HIV, accounting for 3.8% of all new cases (Martin Choo, 2009). A study of Kuantan fishermen in 2005 found that of 73 injection drug using fishermen, 49.3% had shared a needle in the past month and 43.8% were HIV positive. A World Bank-funded study of Kuantan's fishermen found in 2009 that 38% of the population injects drugs and that 34% of injection drug users are HIV positive (Martin Choo, 2010). Furthermore, 49.1% of the entire sample tested positive for hepatitis C.

In Malaysia few HIV-prevention interventions have targeted this group, and no medication-based addiction treatments are being specifically offered to this population. The fishermen being studied are also of special interest because of their unique circumstances. Those fishermen who travel on class B, C, and C2 boats go out on fishing expeditions lasting from 5 to 14 days. Hence, they are not able to make the regular visits to methadone clinics that are typically required for methadone treatment. A more long-acting treatment appears to be indicated. This study was designed to explore the question of whether depot naltrexone would be an acceptable treatment to the fishermen of Kuantan.

### **Medication-Assisted Treatment**

Responses to the twin epidemics of HIV and injection drug use attempted in Malaysia have ranged from forced rehabilitation to harm reduction strategies. Medication-assisted treatment (MAT) for opiate addiction has existed in Malaysia since 1996, when oral naltrexone was introduced (Schottenfeld, Chawarski, & Mazlan, 2008). In 2001, Subutex (buprenorphine) was first introduced in Malaysia (B Vicknasingam & Mazlan, 2008). However, after reports of wide-scale diversion of Subutex, the drug was taken off the market and replaced with Suboxone

(buprenorphine/naloxone) in 2006. Methadone was piloted in 2003 and government-financed methadone treatment became available in 2005 following advocacy on the part of non-governmental organizations and physicians.

MAT aims to assist in cessation of illicit drug use by reducing cravings or reducing the pleasure of the illicit drug (Bruce, Kresina, & McCance-Katz, 2010). The most well-studied medication-assisted therapies are the opioid receptor antagonist naltrexone, the partial opioid receptor agonist buprenorphine, and the full opioid agonist methadone. Copious evidence has accrued that MAT facilitates the cessation of illicit drug abuse and improves health outcomes. (The relative efficacy of these drugs will be discussed later in this paper.)

A review of randomized controlled clinical trials of methadone maintenance therapy, the oldest and best studied pharmaceutical modality, found that methadone treatment is associated with better retention and decreased heroin use compared with either placebo maintenance or other non-pharmacological therapy (i.e., detoxification, offer of drug-free rehabilitation, placebo medication, and wait-list controls) (Mattick, Breen, Kimber, & Davoli, 2009). Furthermore, MAT has proved itself as an HIV prevention strategy. A 2010 review of the literature found that “a preponderance of evidence suggest[s] that sustained treatment with methadone is strongly associated with protection from HIV infection” (Metzger, Woody, & O’Brien, 2010). However, methadone has several disadvantages. Daily dosing of methadone can be burdensome, but, on the other hand, providing several days’ worth of methadone may result in diversion (Mattick, Kimber, Breen, & Davoli, 2008). Detoxification can be a lengthy and difficult process, and fatal overdose is possible. Additionally, in some communities a negative “drug lore” surrounds methadone. For example, several studies have found that potential methadone clients believe that methadone results in bone decalcification (Fischer, Chin, Kuo, Kirst, & Vlahov, 2002; Friedman

& Alicea, 2001; Rosenblum, Magura, & Joseph, 1991). Therefore researchers have explored using other medications as maintenance treatments.

A 2008 Cochrane review of the literature comparing buprenorphine (with or without naloxone) to methadone and placebo found that buprenorphine was significantly superior to placebo medication in retention of patients in and suppression of heroin use at medium to high doses (Mattick et al., 2008). However, buprenorphine wasn't as good as methadone given at adequate levels in retaining patients in treatment or reducing heroin use.

There is some evidence that buprenorphine treatment reduces the risk of HIV. A randomized study found that HIV risk behaviors were reduced in those given buprenorphine relative to those given a placebo (Mattick et al., 2003), and a study of different dosing patterns for buprenorphine found that for all dosing regimens HIV risk behaviors (both drug-related and sexual) were significantly reduced relative to baseline (Marsch, Bickel, Badger, & Jacobs, 2005). The newest formulation, sold under the brand name Suboxone, combines buprenorphine with naloxone with the expectation that naloxone would induce withdrawal symptoms in opiate dependent persons who inject Suboxone, dissuading them from that route of administration (Stoller, Bigelow, Walsh, & Strain, 2001). However, buprenorphine injection has been reported to continue after the introduction of a version combined with naloxone (Bruce, Govindasamy, Sylla, Kamarulzaman, & Altice, 2009; Horyniak, Armstrong, Higgs, & Wain, 2007; Robinson, Dukes, Robinson, Cooke, & Mahoney, 1993).

Naltrexone is an opioid receptor antagonist used primarily in the management of alcohol and opioid dependence. Studies of the oral formulation of naltrexone have only provided equivocal evidence of the drug's efficacy. A Cochrane review in 2002 found that there was a slight, non-significant benefit to naltrexone treatment in terms of retention in care and opioid use during treatment, but that there was a significantly lower re-incarceration rate among heroin users who received naltrexone along with behavioral treatment compared to those who received behavioral treatment alone (Kirchmayer et al., 2002). The sole study of short-acting naltrexone undertaken in Malaysia found no statistically significant difference between the naltrexone and placebo arms on any measure, including number of days remaining in treatment (Schottenfeld et al., 2008).

The underwhelming results of naltrexone interventions have typically been blamed on poor adherence. A meta-analysis of randomized controlled trials of naltrexone with and without behavioral interventions found that level of retention was a moderator explaining the heterogeneity in efficacy (Johansson, Berglund, & Lindgren, 2006). Naltrexone was overall significantly better than the control condition in reducing the amount of opioid use while in treatment, but this did not hold true in studies with low retention. Successful efforts to increase retention also resulted in increased naltrexone use and reduced number of opioid-positive urines, the meta-analysis found.

Another proposed avenue of improving adherence and thus efficacy is use of a long-acting formulation of naltrexone (Krupitsky & Blokhina, 2010). The various forms of depot naltrexone maintain constant blood levels of naltrexone for up to month after injection or implantation. A randomized, double-blind study of a long-acting injectable form of naltrexone in 60 heroin

dependent persons found that retention in treatment was dose related: 39%, 60%, and 68% of patients in the placebo, 192 mg of naltrexone, and 384 mg of naltrexone groups, respectively, remained in treatment at the end of 8 weeks. Whether naltrexone was associated with abstinence from opioids depended on the mode of analysis. When missing urines were counted as positive the rate of positive urine samples for opioids, methadone, cocaine, benzodiazepines was associated with dose. When the data was re-analyzed without that assumption, only the percentage of cocaine urine samples was lower in the placebo group.

### **Past research on MAT barriers and attitudes**

Negative attitudes towards medication-based addiction treatment have been shown to be predictive of poor treatment retention in some populations (Kayman, Goldstein, Deren, & Rosenblum, 2006) and may be a cause of underutilization of drug treatment services.

Unfortunately, there has been little prior research on injection drug users' views of medication assisted-treatment in Malaysia. The lone study of this question in a related population, a survey of HIV-positive prisoners in Kota Bharu, Malaysia, found that 51% of subjects believed opiate-substitution therapy (OST) could be helpful (Bachireddy et al., 2011). Among those describing OST as useful, the most common reasons affirmed were that it would allow for continued but more controlled injection drug use with a "normal life," that it would prevent injection drug use, and that it would help them stay out of prison. Among those not believing OST could be helpful, the most common explanations for this view was the concern that OST would lead to an addiction to methadone or buprenorphine and the belief that they needed to stop using opioids on their own. Just 33.3% of respondents perceived a need for OST to prevent relapse after release. However, 70% expressed interest in learning more about OST options.

Three studies on the barriers surrounding medication-assisted treatment as perceived by patients or potential patients have been conducted elsewhere in Asia. A qualitative study of 30 opiate users in Zhejiang and Jiangxi Provinces, China attempted to ascertain the barriers to seeking methadone maintenance treatment (Lin, Wu, & Detels, 2011). Among the study subjects, 23 of whom were currently enrolled in a methadone program, the identified barriers to methadone treatment included the requirement to register with police, perceived stigma of opiate addiction and methadone use, logistic difficulties (especially transportation problems), side effects, fear of being addicted to another drug, lack of additional services, and economic burden.

A cross-sectional qualitative study of methadone maintenance treatment in Tehran's Ghezel Hesar prison using field observations, focus group discussions, and individual interviews identified obstacles to further expansion of the methadone program. These obstacles including the views of the prisoners, who felt concern over the possible side effects of methadone and the stigma attached to methadone treatment. Prisoners said those taking methadone were perceived as HIV positive, homosexual, and poor.

A qualitative study in Yunnan Province, China of methadone users, injection drug users and non-governmental staff involved in addiction treatment found widespread support for this treatment modality (Philbin & Zhang, 2010). However, several challenges to using methadone were mentioned. Over a third of users mentioned side effects of methadone, especially of weight loss and back pain as an impediment. Some injection drug users rejected methadone treatment as a substitute to heroin inferior to complete abstinence. Fears of loss of privacy, discrimination and police interference were also frequently mentioned as obstacles to treatment.

In the United States, a number of studies have investigated the genesis of opiate users' distrust of medication-assisted treatment. In the 1980s, the Heroin Lifestyle Study, a series of in-depth interviews with 124 black heroin users in major metropolitan areas, looked at subjects' regard for methadone treatment (Hanson et al 1985). Three-quarters of respondents held a negative view of methadone maintenance. The primary reasons given were: 1) "methadone maintenance is just another drug habit" (the most common reason, offered by 64% of the men opposed to methadone treatment) 2) "methadone has serious physiological effects" 3) "methadone programs are ineffective" and 4) "methadone maintenance programs are inadequate in meeting the real needs of people" (Hanson et al 1985, 160). Despite this negative perception, 60% of respondents said they might enroll in a program under certain circumstances, most frequently pressure from the criminal justice system or family members (Hanson et al 1985, 166).

In the ethnography *Righteous Dopefiend*, Bourgois finds that few of the homeless heroin users he studied in San Francisco had access to methadone treatment (Bourgois & Schonberg, 2009).

However, he documents major ambivalence towards methadone amongst his subjects. The drug helps you "stay clean," according to one heroin user (160). ("The stuff works. On methadone you're just like normal. You wake up, you're not sick at all. I mean, hey, you feel normal. I can get up, smile, brush my teeth and eat, go to work... if I worked.") Whereas another subject says, "They're just a legalized dope dealer. They could give a fuck less about people" (161). Bourgois observes that "most of the Edgewater homeless believed, at least to some degree that methadone could potentially change their lives ... despite their fears of the drug's addictive properties and their resentment of the directly observed therapy rules that clinics imposed on their patients."

A number of other qualitative studies of methadone users in North America have catalogued reasons for heroin users' reluctance to enroll in methadone maintenance programs. Fear of

methadone's effects was a prominent explanation for avoiding methadone in several of the studies. Dislike of the dependency-generating nature of methadone and concerns about the drug's effects on a person's emotional and physical well-being was identified as barriers to entering methadone treatment (De Maeyer et al., 2011; Fischer et al., 2002; Hunt, Lipton, Goldsmith, Strug, & Spunt, 1985). Another oft mentioned obstacle is stigma and discrimination against methadone users (De Maeyer et al., 2011; Gourlay, Ricciardelli, & Ridge, 2005). According to several studies, the control that many methadone programs exercise on their users also dissuades heroin users from enrolling (Fischer et al., 2002; Gourlay et al., 2005; Hunt et al., 1985). Fischer et al. (2002) explored the program factors that discouraged enrollment, including the inconvenience of treatment programs, interference with other life activities, harsh punishments for rule violations, and program staff disliked by their clients. Hunt et al. (1985) found that the image of the adventurous, resourceful "righteous dopefiend" contrasts unfavorably with the image of the constrained, passive methadone user.

## METHODS

### **Study Participants**

In June and July of 2012, 40 in-depth qualitative interviews were conducted with injection drug using fishermen of Kuantan and the neighboring village of Beserah in the Malaysian state of Pahang. To participate in the study participants had to be 18 years of age or older, male, employed as a fisherman in the previous 6 months, and report having injected drugs in the past 30 days. Whenever possible, a fisherman's injection drug use was verified by asking to see track marks. (The 5 fishermen who said they injected in the groin were not asked to expose themselves. None of these subjects raised suspicion that they were misrepresenting their drug

use.) Females were excluded from the study because women make up a negligible percentage of the fishermen in this region. Minors were excluded out of concern that they could not give informed consent independently. In addition to interviews with these primary subjects, informal interviews were conducted with citizens of Kuantan and Beserah, workers at the Kuantan Jetty, a representative of the service organization DIC (Drugs Intervention Community) Pahang, and the study recruiter, a former drug user.

Recruitment was initially conducted by a former drug user familiar with the population of interest. Later interviews were arranged by snowball sample. Each interview subject was paid 40 ringgits (12.85 USD), and recruiters – both the former drug user hired to do recruiting and the interviewees who brought friends to be interviewed—were paid the same amount for each eligible interviewee they brought.

Interview subjects were partly determined by convenience, but representation of certain groups was purposefully sought. The researcher aimed to represent old and young fishermen, city dwellers and residents of the villages of Balok and Beserah, and both deep sea fishermen and small crafts fishermen who go out on day trips, and both opiate and amphetamine injectors. To represent the varying types of fishing work, data on the class of boat subjects work on was collected. To ensure the representation of residents of outlying villages, the author of this report and her research assistant stayed for several days and conducted interviews there. Otherwise, all other interviews were conducted on the Kuantan jetty.

**Ethical review and precautions**

Approval to conduct this research was obtained from the institutional review boards of both Yale University and the University of Malaya. The interviewer took pains to never learn or record the interview subject's name, and interviews were carried out in a private space. Before each interview, all subjects who participated in formal interviews were informed about the nature of the study and the risks inherent in participation. The voluntary nature of the study was emphasized. Questions about the study were addressed, and then oral consent was requested.

The fishermen interviewed for this study are a vulnerable population and the interviews often touched on emotionally fraught subjects. Any subject showing physical discomfort (such as withdrawal symptoms) or emotional distress was reminded that he would be paid even if he did not complete the interview and asked if he wanted to continue. Requests to stop were always honored. One subject left the interview suddenly, promising to return, but did not. One asked to stop the interview early. In another case, the interviewer opted to shorten the interview because the subject was experiencing withdrawal symptoms. Both of these interviewees were fully paid.

**Interview protocol**

The in-depth interviews lasted 19 to 117 minutes (with a typical interview lasting about 90 minutes) and were conducted in a private room by the author of this study and a research assistant with native speaker proficiency in both Bahasa Malaysia and English. The research assistant, who had been given several days of training in translation, provided simultaneous translation of the researcher's questions and the subject's replies.

Interviews were semi-structured. They included a battery of questions about past and recent drug use and history of incarceration adapted from another study of Malaysian drug users and basic demographic questions. Other questions explored subjects' work history and views of fishing as an occupation, beliefs about quitting and relapse prevention, experiences of quitting, and sources of health care (including allopathic medicine, home care, and traditional treatments). At the end of each interview was a section on each of three medication-assisted treatments: methadone, Suboxone (buprenorphine/naloxone), and depot naltrexone. Subjects were prompted for their knowledge, experience and views of each of the drugs, presented with a prepared description of the attributes of the drug, and then asked for reactions to the description presented.

### **Data analysis**

All interviews were digitally recorded for later analysis, and verbatim transcripts of the interviews were made by Malaysian research assistants fluent in Malay. Each transcript was then translated into English by a team of 5 students in the United States and Malaysia fluent in Bahasa Malaysia and English.

The translated transcripts were reviewed as they were completed. Based on the first 10, a code sheet was drawn up with categories corresponding to the themes and topics discussed.

Transcripts were then coded in Atlas.ti in an iterative process. Codes were added as new themes emerged. Memos were kept on each transcript noting salient information about the subject and what was discussed. This paper is an interim analysis of the 26 transcripts that have been transcribed, translated and coded so far.

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**Coding Scheme**

<b>Counts</b>	<b>Category: WORK</b>
21	Work: general discussion of work
30	GOOD JOB: reasons fishing is a good job
14	BAD JOB: reasons fishing is a bad job
6	SUBSISTENCE: work as necessity
22	WORK HISTORY: narrative of past jobs held
6	WORK AS ESCAPE: ideas and stories with regard to the idea that work is an escape from drugs
6	WORK AS TRAP: ideas and stories with regard to the idea that work traps a person in drug use and a bad lifestyle
<b>Counts</b>	<b>Category: HEALTH (AND OTHER) CARE</b>
62	MEDICAL ADVICE: who the interviewee goes to for medical advice or help to change drug use behavior
41	DOCTOR: discussion of seeking health care from physicians
19	BOMOH: discussion of seeking care from a bomoh or other traditional healer
6	SHIP: discussion of seeking care at sea
69	FAMILY: discussion of seeking care from family and friends
18	DIC: discussion of seeking care from DIC
<b>Counts</b>	<b>Category: ILLICIT DRUG USE</b>
100	HEROIN: descriptions of use, frequency
13	UBAT: mention or use of ubat as a term for illicit drugs
61	Addiction: discussion of addiction or dependency
13	ATS: discussion of amphetamine-type substances
8	Benzos: discussion of benzodiazepines
5	Illicit drug use: general discussion of illicit drugs without reference to type
17	Morphine: discussion of morphine use
<b>Counts</b>	<b>Category: FACTORS SHAPING DRUG USE (ILLICIT OR MAT)</b>
46	MONEY: "if we have enough money we will buy more drugs" (discussions of economic strategies related to drug use); drug cost; income
50	PEERS: peer influence on drug use
10	DRUG LORE: stories and hearsay about drug use
7	BOREDOM: references to boredom
4	SHAME: references to shame or embarrassment
11	ISOLATION: references to a sense of isolation, loneliness, ostracism
31	PAIN: references to pain or other bodily discomfort
29	PROBLEMS: references to problems that illicit drug use cause or alleviate
28	ENERGY: references to lack or presence of energy
55	USE AT SEA: MAT or illicit drug use on boats at sea
11	USE ASHORE: MAT or illicit drug use on shore and in town

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<b>13</b>	Emotions: references to emotional states or feelings
<b>Counts</b>	Category: <b>QUITTING</b>
<b>23</b>	QUIT_Hope: hopes and aspirations to quit (as opposed to concrete plans)
<b>29</b>	QUIT_Expect: expectations with regards to quitting taking an illicit drug
<b>64</b>	Experiences of Quitting: Discussion of actual quit attempts
<b>49</b>	HOW TO QUIT: ideas or stories about how to rid oneself of an addiction
<b>7</b>	RELAPSE: descriptions of returning to illicit drug use after a break (either with MAT use or not)
<b>20</b>	WILL TO STOP: descriptions of internal locus of control over illicit drug use; will, heart, etc.
<b>3</b>	DRUG VULNERABILITY: characteristics that make a person vulnerable to drug use
<b>Counts</b>	Category: <b>MAT</b>
<b>188</b>	METHADONE: descriptions of methadone use
<b>101</b>	SUBOXONE: use or opinions about suboxone or subutex
<b>85</b>	NALTREXONE: opinions about naltrexone
<b>11</b>	TRANSPORTATION: transportation as an issue for MAT access
<b>71</b>	INJECTION: reference to injecting drugs, where on the body they inject, comparison of injecting versus drinking treatment
<b>119</b>	INTEREST: interest in certain treatments and the interviewee's opinions about other fishermen's interest in certain treatments
<b>38</b>	SUBSTITUTE: thoughts on replacing one addiction with another
<b>19</b>	LOSING THE HIGH: thoughts on MAT side effect of no longer feeling the high from drugs
<b>33</b>	EASE OF USE: preferences among MAT options based on "ease of use"
<b>21</b>	WANT TO TRY: curiosity or spirit of experimentation as motivator of use
<b>Counts</b>	Category: <b>Other</b>
<b>12</b>	HIV: any mention of HIV
<b>18</b>	Pupsen: discussion of forced rehabilitation
<b>44</b>	Religion: discussion of religious views on drug use and drug treatment

## RESULTS

### Description of sample

All interview subjects described themselves as Muslim, Malaysian-born and of Malay ethnicity. Their ages ranged from 21 to 56 with a median age of 36 years. Six of the subjects fished from fiberglass motorboats, which typically make day trips out to sea. The remainder of the fishermen was working on class B, C or C2 boats, which typically go out on multi-day fishing journeys. All interviewees reported regularly using an opioid. (Heroin and morphine were by far the most commonly used opioids. Several fishermen attested to not being sure of whether they used morphine or heroin. Both drugs go by the moniker *ubat*, which means medicine in Malay.) Fifteen reported using amphetamines regularly as well. There were lower levels of use of other illicit drugs. Ten mentioned use of Suboxone or methadone in the past 30 days, but many more had past experience with some type of medication-assisted treatment.

The fishermen had been fishing continuously for the last 13.5 years on average. Their median age at first taking up the profession was 20.5, and they began injecting drugs 2 years later on average. The fishermen's median reported salary was 1,200 ringgits a month, equivalent to 395.36 USD. During times when the fishermen are going to sea (9.7 months a year on average), they are earning about \$13.17 a day. In comparison, the gross domestic product per capita of Malaysia was 16,900 USD in 2012 (Central Intelligence Agency, 2013), equivalent to about \$46.30 a day.

<b>Residence:</b>	<b>N</b>
<b>Kuantan</b>	14
<b>Beserah</b>	7
<b>Boat</b>	5

<b>State born in</b>	<b>N</b>
<b>Pahang</b>	12
<b>Terengganu</b>	7
<b>Kelantan</b>	4
<b>Kedah</b>	2
<b>Missing</b>	1

<b>Boat type:</b>	<b>N</b>
<b>Fiberglass</b>	6
<b>B</b>	5
<b>C</b>	6
<b>C2</b>	9

<b>Typical fishing voyage length</b>	<b>N</b>
<b>&lt; 1 day</b>	6
<b>1 – 7 days</b>	5
<b>8 – 14 days</b>	14
<b>Missing</b>	1

<b>Education</b>	<b>N (%)</b>
<b>No formal education</b>	1
<b>Some primary school</b>	1
<b>Completed primary school</b>	6
<b>Completed lower secondary school</b>	10
<b>Completed secondary school</b>	8

	<b>Number of times detained Mean (SD)</b>	<b>Duration of detention Mean (SD)</b>
<b>Lock-up (jail)</b>	12.2 (11.2)	13.5 (2.2) days
<b>Prison</b>	2.3 (2.3)	14.8 (11.0) months
<b>PUSPEN</b>	1 (1.5)	18 (6.3) months

<b>Marital status:</b>	<b>N</b>
<b>Single</b>	11
<b>Married</b>	12
<b>Divorced/separated</b>	3

	Ever used: N	Times used in the past 30 days Mean (SD)	Ever injected: N	Times injected in the past 30 days Mean (SD)
Alcohol	20	0.6 (3.0)	--	--
ATS*	23	8.8 (10.9)	17	6.6 (10.7)
Benzodiazepines	18	3.0 (8.2)	12	3.8 (8.7)
Cannabis	16	0.5 (1.3)	--	--
Heroin	26	17.5 (10.5)	25	17.6 (12.0)
Ketum**	12	0.1 (0.4)	--	--
Non-heroin opioids	17	8.4 (12)	14	8.2 (12.8)
Suboxone/Subutex	20	0.3 (0.8)	17	0.2 (0.7)
Methadone	19	3.1 (6.9)	--	--

\*amphetamine-type substance

\*\**Mitragyna speciosa*, also called kratum or krathom, a psychoactive herbal drug indigenous to Malaysia

Drug of choice	N
ATS*	1
Benzodiazepines	2
Heroin	20
Morphine	3

\*amphetamine-type substance

### Orientation towards quitting

Interviewees expressed a strong desire to cease their drug use with few exceptions. Most respondents (19 out of 26) were quick to say that their drug use was a problem in their lives, and the vast majority (22 out of 25 asked) said they perceived themselves to be addicted to their drug of choice. According to the fishermen, their dissatisfaction with their illicit drug use was rooted in 1) the discomfort of withdrawal symptoms 2) the financial toll of their drug habit 3) a belief that continuing to use illicit drugs was impeding life plans like marrying and starting a family and 4) shame.

The pain of withdrawal and the financial burden of the addiction were often mentioned in the same breath. In this example, from an interview with a 47-year-old heroin user who fishes aboard a class B boat, money troubles are mentioned first, pain second:

Interviewer: Do you think that using heroin is a problem for you?

Fisherman #1: It is truly a problem.

Interviewer: Why? Why is it a problem?

Fisherman #1: Because I am addicted towards it, that's why I can't run away from it, I must take it, so it's a problem. If possible I really want to throw it away because we must give our money away in order for it to come to us. When it's not there, pain comes. [It's] really a problem.

For many, financial status was the primary measure of the toll of drug use. A 36-year-old user of morphine, amphetamines, and Suboxone described the "high cost" of drugs and his inability to save as the main negative consequences of his heroin use. Later in the interview, while explaining that his fellow fisherman would be "very interested" in trying methadone, he described financial troubles as the main plight of the drug addict:

Interviewer: Why would you say "very interested" [in methadone]?

Fisherman #2: Because we always sit together and talk about it [quitting drugs].

Interviewer: What did they say to you?

Fisherman #2: They are tired of living life as a drug addict. Mm, their life is not in order.

Interviewer: How do you know if your life is in order or not?

Fisherman #2: Erm, that's easy, I have no money. Nothing. [Laugh]. That's not in order.

### 3) Life plans

Furthermore, for several fishermen their drug use was impeding their life plans, particularly in the realm of family life. This fisherman expressed the desire to better care for his family.

Interviewer: What inspires you to stop using drugs?

Fisherman #1: For me, I have a child and if possible, I want to take care of her. I wish to take care of her and do my own business. I don't want to depend on salary, I want to work myself, own a lorry. I don't really want to do this job anymore. Then I shall save money.

For this fisherman, a 34-year-old user of amphetamines and heroin who fishes aboard a class C or C2 boat, achieving "normality" through familial acceptance was a goal:

Interviewer: Why did you attempt to stop?

Fisherman #3: I don't want to continue being an addict.

Interviewer: Why?

Fisherman: When I am old, I want to change my lifestyle. I want to be like a normal person.

Interviewer: What do you mean by a “normal person”?

Fisherman #3: I want to go back to my family. As long as I’m an addict, my family does not accept me.

Interviewer: When you say that your family will not accept you as long as you’re an addict, who did you mean by family? Your parents, siblings, or wife?

Fisherman #3: My old family, my wife ran off and divorced me. My child is living with my mum. As long as I sniff [drugs], they told me not to come home. “Once you stop being an addict, only then can you come home.”

For those without a family, achieving marriage and fatherhood was described as a motivation to quit:

Interviewer: Is trouble with drug usually a lifelong problem that you have to deal in the long term or temporary issue?

Fisherman: Temporary.

Interviewer: Why is it temporary?

Fisherman: Just stop it, because I want to get married. People have wives and children but I don’t, so how long do I want to stay like this?

#### 4) Shame

Finally, the shame and stigma of drug use was described as a motivation to quit. This man, like the man above who described not being accepted by his family, found himself shunned by his relations:

Interviewer: Do you think using heroin is a problem to you?

Fisherman #4: For now, yes it is a problem.

Interviewer: What do you mean for now?

Fisherman #4: I have the intention of quitting. I am trying to quit.

Interviewer: How is heroin a problem for you, sir?

Fisherman #4: I feel distant from my family, and my body is unwell.

Interviewer: What do you mean you are far away from your family?

Fisherman #4: As an addict, I have become thin, so I’m embarrassed. I’m embarrassed to go back to my village

#### *Ambivalence*

A few of the fishermen interviewed were more ambivalent about their drug use. A handful of respondents said they were not ready to quit or saw no purpose in quitting.

Fisherman #5: Sometimes I think there's no need to quit. Because since I'm doing it, might as well go on doing it. I thought that way. Sometimes I feel it's better to build a new life over. Like that.

This fisherman was determined to quit, but not immediately:

Interviewer: Do you hope to stop using heroin in the next year?

Fisherman #6: Maybe. Maybe I'll stop. We'll see in one to two years' time if I want to quit.

Interviewer: Do you hope to stop using heroin in the next five years?

Fisherman #6: Maybe.

Interviewer: Maybe right?

Fisherman #6: Yes.

Interviewer: Do you hope to stop using heroin for the next ten years?

Fisherman #6: No. Ten years is too long. Five years.

### **Modes of quitting**

Subjects discussed a number of modes of quitting – hypothetical or actual ways to stop using illicit substances. Most of the fishermen could identify some potentially fruitful modes of quitting, and nearly all had at some point stopped using their drug of choice for some interval, either because of incarceration, drug shortage, or a concerted effort to quit. A sizable minority expressed bafflement at the problem of how to quit. For example, this 36-year-old user of heroin, methamphetamine and morphine, said:

Fisherman #7: Now if I wanted to stop, I don't know how to do it, if I don't have the stuff my mind gets lost and I can't do anything, I become someone who doesn't know anything. I don't know what to do.

However, the vast majority of the respondents had theories about the preferable approach to quitting illicit drugs, and most could describe past experiences of quitting.

*Isolation*

One of the fisherman's most common modes of quitting was to remove themselves from drugs and those that use them. For a number of the fishermen, the occupation itself is lashing them to their addiction. For example, one fisherman when asked whether fishing is a good job replied:

Fisherman #1: I can't really say fishing is a good job. It is good in terms of being able to work freely and the pay is good, but getting big sums of money means we can buy drugs easily. Meaning such pay makes it convenient for getting those drugs.

Interviewer: Easy to get drugs...

Fisherman: But to say it's a good job, not really. I mean I don't think it suits me since I'm addicted to drugs. It makes taking drugs simpler right? That's the thing.

For some of the fishermen, leaving fishing as an occupation is an avenue to leaving behind their addictions, and returning to fishing means returning to their addictions. One fisherman, a 41-year-old user of heroin and amphetamines, recounted how he managed to quit heroin for 8 months by taking a job away from the fishing industry but relapsed upon being forced to take back his old job. He concluded that he could not quit while working as a fisherman:

Fisherman #8: Maybe the only solution is working place. I change my working place from sea to driving a lorry in the city. So I work whole day driving it. But when I come back here, due to influence from friends and also the availability of the drugs, the craving comes back.

Interviewer: Is there any other way other than changing work place?

Fisherman #8: I think that's the only way. If possible, I want to be far away from my friends. These drugs, if we stop, then we mix back with our friends, [and] it comes back into our minds.

Short of leaving their trade, a number of fisherman said they would have to avoid friends.

Several mentioned "staying at home" as a good way to stay out of trouble.

*Work*

Though some said the fishing trade lures and traps those that are involved into the world of drugs, others saw their work as a way to escape drug use. The vast majority of respondents said they did not use their drug of choice while at sea, and some conceived of their work as an escape from their addiction. Four fishermen mentioned being able to go to the sea to control their addiction as one of the chief benefits of the job. For example, this 27-year-old user of heroin and an amphetamine-type substance called pil kuda, when asked what is good about being a fisherman answered:

Fisherman #9: It gives me income to find sustenance. That is one. Then, I can eradicate the addiction by staying at the sea. I don't take drugs when I am at the sea.

Some fishermen described the choice to abstain from drug use as a financial decision – the allowance the ship's skipper provides them to provision themselves for the fishing trip is not enough to cover the high cost of drugs like heroin. (Hence, as will be discussed later, the cheaper methadone is a popular alternative.)

*Faith*

Many of the fishermen spoke of finding strength in faith and observance of Islamic practices like daily prayer. This fishermen, a 27-year-old heroin user, was asked the best method of quitting drugs:

Fisherman #10: The best method... if... it is strong. Strengthen your beliefs in your religion. Always meditate. Because this thing is like a reminder like lust to you. It is like the demon. Can say that. But it is strong. The faith is strong. Don't miss prayers, meditate, [and] you will forget this thing. Many have stopped.

Often the religious impulse was associated with family life. Many spoke of their families urging them to look to religion as an avenue away from a life of drugs:

Fisherman #3: They advise me to go to the mosque. Pray five times a day. Mix only with those who are religious. Do not befriend those that are addicted to drugs.

This man, a 43-year-old heroin user who goes on class C2 boats, perceived turning to religion as a means of overcoming the stigma of drug use:

Fisherman #11: I have to follow the society, for instance going to the mosque and praying, mingling with them.

Interviewer: How does going to the mosque help?

Fisherman #11: Maybe it can help.

Interviewer: How?

Fisherman #11: Go and pray, mingle with the people.

Interviewer: Why do you think it would help you?

Fisherman #11: When we pray, they see us as if we have changed into a good person. Something like that. Sometimes they accept us, sometimes they don't.

#### *Will to stop*

Many of the respondents underlined the importance of having the “heart to stop” or the “will to stop.” When asked, “What is the best way to stop using drugs – the best solution?” one fisherman answered:

Fisherman #3: Me, for example, I am from Kuantan heading back to my place in Kuala Terengganu. I can escape from drugs from here but when I reach there in Terengganu, there is where the morphines are. You can't really run away from it. In my case, there's no need for me to go or run anywhere. If I really have the heart to stop, I will stop. When I was at sea for twelve days, I did not bring any drug supplies. I can stay calm for like three days but everything goes back to the original state when I come back. If I do really want to stop, when I come back, it's like I have washed my hands. I won't touch any of that stuff, am I right?

Asked, “[Are there] other ways [to quit heroin], other than methadone?” a B-class fisherman who uses heroin answered, “No. Because it all depends on us ourselves. If we are keen to stop, the heart to do it, it is possible, but most of the time it will not happen.”

The will to stop was often described as a necessary compliment to treatment. When a 43-year-old fisherman from the village of Beserah, mentioned receiving a traditional treatment for heroin addiction, the following exchange occurred:

Interviewer: Is it [the traditional treatment] effective?

Fisherman #11: It's effective. But it depends on my heart too.

Interviewer: What do you mean?

Fisherman #11: In the beginning it would be effective, but it depends on my heart, too.

### *Traditional treatments*

Subjects were questioned about whether they had used a bomoh, a Malay shaman, to treat their drug use problems. Many showed disdain for bomohs, laughing at the question of whether they would use their services, and several noted that they did not trust bomohs. Five fishermen said they had sought treatment from a bomoh to address their addiction (or that their families had sought this treatment on their behalf). However, two of the men who had consulted a bomoh as drug treatment were convinced that bomohs could not cure substance use problems. One fisherman who had consulted a bomoh explained that the treatment cleansed his body by inducing vomiting but that the treatment did not have the power to rid him of his drug cravings. Asked if he would go to a bomoh again he replied, "No way. Because I have methadone." Another said it was hard to say whether the treatment worked because despite having a healthy body, "once we remember them [drugs], it's gonna be hard."

Several of the residents of the outlying fishing village of Beserah said that they trusted and even preferred traditional treatments over Western "modern" medicine. When asked why he would be

inclined to try traditional medicine before seeking treatment at a hospital or clinic, a 47-year-old C-class fisherman who uses heroin said:

Fisherman #13: Well, I do believe in modern treatments, too, but I'll try the traditional treatments first because it is good and it comes from our ancestors.

When discussing a dissatisfying visit to a local clinic, a 44-year-old fisherman who goes out on a small fiberglass boat commented:

Fisherman #14: Maybe they suspect I am an addict. The hospital staff plays dumb. I do not understand the way they work. Seeing as I brought my kids and I have other matters to attend to, I went home straightaway. It is better to get service from bomohs.

### *DIC Pahang*

Many of the fisherman spontaneously mentioned Drug Intervention Community (DIC) Pahang, a non-governmental organization serving drug users, as a trusted source of information, advice and services. DIC runs a number of programs, including operating a needle exchange which passes through the Kuantan jetty and other locations frequented by fishermen, and a multi-year rehabilitation program which provides shelter and work for former drug users. For example:

Interviewer: What is the best way to stop using drugs?

Fisherman #3: DIC is the best way.

Interviewer: Why do you trust DIC?

Fisherman #3: Because I see many of my friends change. They all succeed.

### *Detention*

Nearly half of the fishermen involved in this study (10 out of 26) had experience in one of Malaysia's 26 Narcotic Addiction Rehabilitation Centers, called *Pusat* (center) or PUSPEN, where the drug authority can detain drug users for up to two years. The majority of those who discussed their experience at any length found their stay in PUSPEN disagreeable and

unproductive, but several mentioned being grateful for the opportunity to study Islam and do sports at PUPSEN, and a few said that their experience was helpful in quitting drugs. One fisherman, a 47-year-old resident of Beserah spoke of the exercise, counseling, and outings he enjoyed during his two years at PUSPEN. He recalled:

Fisherman #13: When we were at the *Pusat* we have good stamina, less rest. Our strength, physical and mental is okay since we need to exercise. They want us to convince ourselves to leave these drugs. They trained us, not giving medicine only.

For this fisherman the experience at PUSPEN was “truly good because they teach how to pray, educate me, ask me to be clever. From not knowing I learned.” He says he abstained from drugs for six months after leaving PUSPEN, but the influence of drug-using friends eventually swayed him.

On the other hand, this 35-year-old user of heroin and pil kuda, asked if he was hoping to stop using drugs in the next year, took pains to specify that he was not willing to do so at the cost of his liberty:

Fisherman #15: Stop? I certainly hope so. But I am not hoping to be imprisoned anywhere by the government. I want [to stop] from my heart by myself. Like when I was imprisoned two times ago, if it does not come from the heart, it does not work. As soon as I got out [of jail], I looked for goods. ... I do want to quit. If possible, I want to quit. I asked for support from my family or people I trust, people I love. Not [the method of] the government imprisonment, not like that.

And this, 44-year-old heroin and amphetamine user and native of the outlying village of Beserah, commented on the “benefits” of his time in PUSPEN this way:

Fisherman #14: [Small laugh.] There were no benefits. It was a waste of time. But ... I got experience. [My opinion] is that if there is anyone who wants to go in Pusat [PUSPEN], there is no need for that; it is better to pay a fine.

### *Medication-Assisted Treatment*

To many respondents, MAT was the paramount way to treat addiction. This fisherman, despite a disappointing experience with Suboxone, still felt that taking a medication was his best and only route to quitting heroin:

Interviewer: So you feel that in a year's time, you will still be using heroin?

Fisherman #16: If there is something to quit it. Like the other day, there was subu [Suboxone]. I quit a while and took subu. Seeing a worse effect I quit subu, and took up heroin again.

Interviewer: Do you think you will stop in a year's time?

Fisherman #16: [I] will still be using heroin. Until I find a suitable medicine.

Other fisherman echoed that hunger for a new, better treatment. During the consent process one asked, "What is this study for? Is it to provide a better drug?" and before the interviewer could give a reply made this request:

Fisherman #9: If you make some, give me a little. Methadone is hot; it is dangerous. After eating methadone, I sweat a lot.

### **Views on medication-assisted treatment**

#### *Orientation towards MAT*

Interviews with the fishermen explored their orientation towards medication-assisted treatment. To probe these views, subjects were asked whether they believed that MAT was merely "substituting one drug for another." Responses varied. Of the twenty respondents who discussed this idea, nine disputed it directly, arguing that MAT is better than illicit drug use. Others assented readily. Four fishermen expressed agreement with the idea that MAT is "just" a substitution. Another four went further, arguing that MAT was not a substitute, but markedly inferior to morphine or heroin. Four expressed an ambivalent or mixed reaction to the concept.

The view that MAT is a mere substitution is typified by this remark:

Interviewer: Some people think that taking medication to treat an addiction is not a good idea because you're only substituting one drug for another.

Fisherman #1: That's right.

Interviewer: What do you think about that idea?

Fisherman #1: I agree because methadone, this government medicine, it is quite addictive. So for me, methadone, Suboxone and Subutex [the formulation of buprenorphine formerly available in Malaysia, which doesn't include naloxone], they are just like slow drugs.

Similarly, this 21-year-old class C2 fisherman and user of heroin, pil kuda, and methamphetamine remarked:

Fisherman #17: It is true what they say, because what stops the drug addiction is another drug. It is the same.

Those that disagreed pointed out key differences between methadone and Suboxone (the two types of MAT universally familiar to the fishermen) and the illicit drugs they used.

Some respondents argued that the function, role, or community regard of MAT medications is superior to the illicit drugs they use. Many pointed out that methadone and Suboxone could be a "solution."

Interviewer: Some people say that it's useless to use drugs like Suboxone or methadone because you're just substituting one drug for another drug. What do you think about that?

Fisherman #17: Come it again? I don't understand.

Interviewer: It's like it does not benefit us when we use it, such as this methadone and Suboxone treatment because you're just substituting one drug for another drug.

Fisherman #17: Okay. It's not really useless. It's one way of solution. The only thing is we don't inject it and take the right amount of it. That's all.

This fisherman initially likened MAT and illicit drugs, pointing out that both can give a high, but when questioned further argued that MAT is not just a substitution because it is an avenue to total abstinence from both the medication and the illicit drugs.

Interviewer: Some people think that taking medication to treat addiction is not a good idea because you are only replacing a drug with another drug. So, what is your opinion about that statement?

Fisherman: #9 True.

Interviewer: Why do you say it is true?

Fisherman #9: We can get high when consuming Suboxone and methadone.

Interviewer: So, Suboxone and methadone are not any better than that? I mean, it is similar to other drugs.

Fisherman #9: No. It is good that it can eradicate the heroin and whatnot. It is taken once per day. If we strictly follow the procedure, we can quit. It lessens. Lessen the dosage.

Interviewer: So, the treatment is better than other drugs.

Fisherman #8: Yes.

Additionally, fisherman who argued against the idea that methadone and Suboxone are just substitutes said that the functional role of MAT is different than that of illicit drugs: MAT facilitates a healthy lifestyle, while drugs do not. This exchange exemplifies a distinction between MAT and illicit drugs made on the basis of what kind of livelihood each enables:

Interviewer: There are some people who think that taking drugs to cure addiction is not a good idea because you are only replacing one drug with another. What do you think about this idea?

Fisherman #14: My opinion is the treatment is very good. Because I have seen my friends, going from being unemployed and collecting scrap metal to working at factories and going to sea [as a fisherman].

Some respondents argued that the most important (perhaps only) difference between MAT and illicit drug use is the way MAT is perceived. For example, one 29-year-old fisherman and morphine user living aboard a class C boat agreed that MAT was “just” a substitute, saying that MAT is not bad but “also does not really help,” but later suggested that drinking methadone to stop morphine use was a good avenue to quitting. When asked about this contradiction he answered:

Fisherman #18: It [drinking methadone] is slightly better. Better in the sense that, yes, drugs are bad, but people can accept methadone. The villagers accept us using methadone because it resembles that we have stopped using drugs.

However, many of those who took issue with the idea that MAT is no different from drugs took a different tack, arguing instead that illicit drugs are preferable to MAT. Oftentimes, the fishermen explained that methadone or Suboxone compared unfavorably to illicit drugs because they are more addictive or harder to quit than illicit drugs.

Interviewer: There are a few people who think that taking methadone or Suboxone treatments is not a good idea, because you are only replacing a drug with another. What do you think about this statement?

Fisherman #3: For me, it is better to take drugs.

Interviewer: Why?

Fisherman #3: Suboxone/methadone causes heavier addictions. With drugs, the longest cravings only go on for a week, whereas with Suboxone and methadone, it takes months to lose the cravings.

Another, fisherman, a 23-year-old user of heroin, morphine and amphetamines, said:

Fisherman #2: Frankly speaking, both are not good. Rather than taking heroin, it is better to take methadone.

### *Uses of Methadone and Suboxone*

Methadone and Suboxone were valued for their physical effects, low cost, and convenience. The medications were frequently used by fisherman to obtain a high or quiet cravings when their illicit drug of choice was too difficult to obtain. Most often, using methadone or Suboxone was an economic decision. Methadone is cheaper than heroin. Suboxone, though expensive if used as prescribed, is relatively cheap if a single dose is divided and injected over the course of five to ten days. (And among those who had experience with Suboxone, nearly all injected a fraction of a dose at a time.)

Fisherman #2: Of course we have to keep it for standby because drugs are very expensive. Methadone can save us money.

Interviewer: What made you want to try methadone?

Fisherman #20: I had a very difficult time working, and I needed to get money. Methadone was free.

Interviewer: So why do you think they are interested in Suboxone?

Fisherman #1: Because it is cheap and easy to get. One tablet of Suboxone can be split into ten small pieces, meaning you can use it for ten times.

This fisherman differentiated between his use of Suboxone and methadone as a means of managing cravings and the use of those drugs to quit:

Interviewer: Have you ever taken any sort of treatment from a doctor to help you stop using drugs?

Fisherman #13: No.

Interviewer: You have used Subutex, Suboxone and methadone. Did you get them from the doctor?

Fisherman #13: Yes.

Interviewer: But you did not use those treatments to help you quit [using drugs]?

Fisherman #13: Umm ... No, I was still using needles. I took those substances as a replacement drug for heroin. I used them to cure my cravings and to normalize my body.

Additionally, some cited the convenience of taking methadone, which has a longer lasting effect than heroin, as did this fisherman:

Interviewer: Umm, can you give other reasons why fishermen might be interested in the methadone treatment? Other reasons?

Fisherman #18: Because methadone is only consumed once a day, it does not take up a lot of time. Like for my case, I have to take my drugs five to six times per day, morphine can only last for two hours before the addiction kicks in again.

As mentioned previously, respondents frequently described bringing methadone aboard the boat during fishing expeditions as a replacement for heroin or morphine. For example, one fisherman described his choice to bring methadone on voyages this way:

Interviewer: Why don't you bring heroin along [on deep sea fishing expeditions]?

Fisherman #1: Because when we head out to sea, the skipper will lend us only around fifty to one hundred ringgit. With that amount we simply can't buy because it is expensive. That's why after the first day we use methadone to treat our addictions. Heroin is not suitable at sea, it's just too expensive.

This fisherman described bringing methadone as a replacement for heroin to facilitate his work:

Interviewer: Would you say that you're accustomed to using methadone?

Fisherman #14: I bring a supply of it to help with the craving when I go out to sea to stop the craving for heroin. Without it, I can't do work.

Additionally, some fisherman held that methadone should be used strictly during the process of withdrawal from heroin or morphine, rather than as a maintenance treatment. A fisherman who had initially expressed disapproval of methadone later explained that he thought methadone should be used in some cases but only briefly, before quitting all substances:

Interviewer: She said she's surprised because at the beginning you told me that you didn't like the idea of methadone and now you're saying you're very interested with methadone. What makes you change from not interested into interested?

Fisherman #4: No, because if I drink methadone every day I'll get addicted to it and it's hard to stop. If I only drink for one week, then I can stop using this drug. I'm afraid that I'll get addicted to methadone if I drink every day.

When discussing his strong interest in using methadone, this fisherman, a 38-year-old heroin user who fishes on class C2 boats, specified that he would only use methadone briefly:

Fisherman #21: I've always felt that the road to kick the habit [of using heroin] must start with methadone. However, a lot of my friends now drink it uncontrollably. They are now addicted to methadone instead. My friends told me not to drink too much of methadone. Stop drinking after 3 days. Don't drink that much. I want to try that. I'm definitely interested in methadone, and I want to try stopping with the help of methadone.

### *Barriers to Using Methadone and Suboxone*

Work and transportation were the two most frequent obstacles to taking MAT cited by study participants. As was hypothesized at the outset of this study, daily administration of methadone at the free state-run clinics is not accessible to fishermen who go out on multi-day journeys. This interviewee reports that a methadone clinic, aware of this, disqualified him on the basis of his occupation:

Fisherman #1: I'm interested. I have tried it but that day when I was sick, I went to the hospital and the doctor gave me a letter to get methadone. When I went to the place where they issue methadone, they asked what I am working as and I told them fisherman. They said methadone won't work on fishermen because I won't be on shore daily to take methadone.

This statement nicely summarizes the situation of most fishermen with regards to the daily dose schedule:

Interviewer: Have you ever thought to go to the clinic in Beserah or Kuantan to take methadone every day?

Fisherman #13: Yes, I did. I've already registered.

Interviewer: What stops you from taking methadone then?

Fisherman #13: If I'm going to take methadone, I've to register and I have to turn myself up every day to the clinic. The problem will arise if we have to work that day.

However, the same fisherman imagines that he could get extra doses to take with him on his fishing trips, mitigating the problems mentioned above:

Interviewer: What would stop the other fishermen for not to try this methadone treatment?

Fisherman: It's not that they don't want to try methadone but that it's hard for them because they need to work at eight o'clock but the clinic opens at nine. And then sometimes they get their supply late.

Interviewer: What will you do when you go away on the boat and when you go to take your methadone? Do you still have the methadone supply by then?

Fisherman: Like I said before, we need to report ourselves first. For example when we're going away for fishing, we will report to them and they will give us supply. Usually the supply is two to three bottles per week. Anyway, it depends on us. There is no problem even if we don't report to them and take the supply.

Given that so many of the fishermen reported bringing methadone on board their fishing vessels, it's apparently possible for the fisherman to provide themselves with supplies of methadone from the black market or private doctors not following the daily dosing requirement of the public clinics.

Transportation problems were another issue preventing access to methadone and Suboxone.

Even for those who could theoretically come to the clinics, given their work schedule,

transportation problems often intercede:

Interviewer: Why have you not continued using methadone yourself? Like now you used it before, why stop?

Fisherman #22: I take it sometimes but sometimes it gets into my mind. Sometimes it's problem with transport to the clinic.

This fisherman ran into the same problem when taking Suboxone:

Interviewer: And the... So why did you stop using Suboxone?

Fisherman #21: It's hard to go back and forth to the clinic. I wanted to store some, but the doctor doesn't allow that. He told me to take one only. I wanted more because we go out to the sea for extended periods, but the doctor refused. Only one a day, 4mg.

In sum, in the eyes of many of the fisherman in this study methadone and Suboxone are not

terribly convenient treatments, as this fisherman explained:

Interviewer: Can you tell me the reasons why fishermen don't want to receive methadone treatment?

Fisherman #21: It's not that they don't want to. I feel that if the treatment is free, it will be easily accessible. But now because the entire process is cumbersome because its far, it takes too much time. When you return back from the sea, you only have 2 or 3 days. And in that time, they want to stay at home to relax. Thus, they do not wish to "waste" that time to acquire the medicine (due to the distance). If you send the medicine to their houses, they will want to take it.

Health concerns were another reason that fishermen rejected existing MAT. The idea that methadone and Suboxone had serious adverse health consequences was widespread. Many claimed that methadone caused physical wasting leading to ill health and death:

Fisherman #7: To make it simple, methadone consumes the body of the user. I think my conditions are better than those that use methadone. Their bodies are weak and thin. They don't even have appetite. As I observe, at the end, they will mostly die.

The observation that methadone doses were often increased rather than decreased over time led to suspicion in many:

Interviewer: Do you have any ideas why the doctor suggested methadone to you? To all those friends of yours?

Fisherman #8: I have no idea but for now, if methadone really helps people to quit drugs, why does the dosage keep increasing? If we take methadone, it is supposed to be getting lesser and lesser when our addiction goes down but the dosage keeps on going up until one stage that a person's antibodies can't even accept it.

Fisherman #23: So they just sit at home and take drugs. They go to the government for methadone supplies firstly in small amounts and then in bottles to overcome their addiction. Some drank until ten bottles and were sent to hospital. I was there in hospital. I just can't explain how awful their faces were.

Interviewer: Is it possible to find medicine that can act effectively to treat the usage of drugs or not?

Fisherman #13: For the time being I find that there's still no cure.

Interviewer: Why did you say like that?

Fisherman #13: There was a time when government gives methadone to treat people in order for them to stop using drugs. But once we use methadone, instead of curing, it makes us to be addicted to methadone until few years. So this means that methadone should not be used.

Fisherman #24: As far as I know, there are a lot of methadones out there. They sell it and lots of young people are drinking it. It's not that they want to quit drugs, but to kill themselves with it. This answer, I can assure you, is very true and correct. It's not that they want to quit, but due to money. They don't have work, so where can they get money? What will they do?

Fisherman #1: It kills us slowly, that's why I see many people, although [they] misuse it, Suboxone for example, they ask us to consume it [orally] but we inject it. That we don't really care much. As for methadone, if we drink too much, if you see those people in hospital, their face looks more awful than people that take heroin, so many of my friends died.

Drug users are vulnerable to the police, and being jailed by the police on suspicion of drug use interrupted two subjects' use of MAT. A 28-year-old fisherman of 5 years recounted relapsing from drugs after detention by the police interrupted his methadone therapy. Another fisherman, a 28-year-old heroin, morphine, and amphetamine user who fished on large C2 vessels, intended to

begin methadone maintenance treatment but lost his methadone registration records after being stopped by the police on his way to the methadone clinic.

Additionally, there was reluctance on the part of some fisherman to interact with the health care system. One interviewee speculated that other fisherman would be afraid to register for methadone treatment because it requires a blood test for HIV, and they would be too afraid that the test would reveal they are HIV infected.

### *Suboxone versus methadone*

Study participants largely preferred methadone over Suboxone, pointing to the availability of free methadone, dislike of the feeling Suboxone gives them, and the dangers of injecting Suboxone.

This fisherman spoke impassionedly about the dangers of Suboxone use:

Interviewer: Hearing that, what do you think? Would you be interested in receiving Suboxone treatment?

Fisherman #15: Not interested. I know it hurts more than medicine craving. Many people said that their pain gets worse. They become more addicted than heroin. It is stronger, more powerful than heroin. Many members have died, I really am telling you the truth, they misuse it, they use it by injection, whereas they are supposed to be sucked, swallowed. But they inject, the blood [becomes] stuck, it becomes poisoned.

Interviewer: How many friends of yours died?

Fisherman #15: Many, [I] cannot count it. But many, if those long-term addicts, it rarely happens to people who just started, age class 30 to 40 years old. That is all I can answer. Subuxone! Subutex no, it is subuxone, because it is sweet. Sweet cannot get into the blood. For the drug addicts, they are stubborn. They try things they are not supposed to do. That is bad, is wrong. Try it once, you take a little and you try, then only will you know it if it is sweet. Then only will you know more. It really is sweet.

Though Suboxone is supposed to be taken orally, many said they would they avoid the drug entirely because they did not believe they could not resist the temptation to inject it:

Interviewer: If a doctor suggests to you to try the Suboxone treatment, would you follow his advice?

Fisherman #15: No.

Interviewer: Why not?

Fisherman #15: Because I am afraid I will misuse it, because I use injection [drugs], I am afraid that I will inject it. It can be injected too, but it has its effects, it takes time. [Even] if I don't want to inject, I will inject it once in a while.

### *Naltrexone*

Unsurprisingly, none of the fisherman was aware of depot naltrexone, which is currently unavailable in Malaysia. Hence, their reactions were exclusively based on this description of the use and effects of naltrexone the interviewer provided:

Naltrexone is a medication used to reduce heroin and alcohol use which may also help people reduce their amphetamine use. Specifically, it is an injection to help people stay off heroin and other drugs either completely or for longer periods of time. Naltrexone reduces cravings for heroin and other drugs as long as the person continues to take it monthly.

A person should be not taking any heroin for a week or so before starting naltrexone. In some cases, doctors have to help drug users detox off heroin before starting naltrexone. After abstaining from heroin, the drug user would receive an injection in the buttocks from a doctor or nurse once a month. Though any medication may cause side effects, there are few that occur with naltrexone. Naltrexone may cause upset stomach or vomiting, diarrhea, headache, sleep problems, tiredness and joint or muscle pain. Rarely, naltrexone can cause a reaction at the site where the drug is injected in the buttock, severe headache, and suicidal thoughts.

People are not likely to abuse naltrexone. People using injectable naltrexone do not develop tolerance for or dependence on the medication.

When asked if they would be interested in using this treatment, opinions were divided. Among those who were interested in naltrexone, nearly all mentioned the convenience of naltrexone treatment as a key factor. This answer from a 36-year-old heroin, morphine, and methamphetamine user, was typical:

Interviewer: Hearing that would you be interested receiving Naltrexone treatment?

Fisherman #15: Interested!

Interviewer: Somewhat interested or quite interested?

Fisherman #15: Quite interested.

Interviewer: Why?

Fisherman #15: Because it's injected once a month. Once a month, I would have time to work, so that's okay.

Again, this fisherman immediately seized on the once monthly administration of depot naltrexone as a benefit, but next mentions enthusiasm at the prospect of trying a new type of MAT.

Fisherman #13: I'm quite interested [in naltrexone].

Interviewer: Why?

Fisherman #13: Because as you said just now, it is only used once a month.

Interviewer: Would you like it better than methadone or Suboxone?

Fisherman #13: Since we've already tried methadone and Suboxone, we know how it works. But we haven't tried naltrexone yet, so I'm interested in it.

The novelty of depot naltrexone was mentioned as a positive trait nearly as often as the monthly administration. The willingness to "try" was often mentioned, echoing the spirit of experimentation the fishermen described in their accounts of how they came to first be exposed to illicit drugs:

Fisherman #1: Most of them are fishermen and most of them want to stop too but I see most of them are using Subutex, methadone and Suboxone. So if this treatment is better, then they would try it. How much does it cost by the way?

On the other hand, the same fisherman quite naturally pointed out that the novelty of naltrexone could be a source of hesitation:

Interviewer: Do you think that because the medicine is injectable, people might be afraid to take it?

Fisherman: Yes, maybe people will be afraid because they have never heard this thing right? So for the first time, they might be afraid.

Opinions were similarly divided over whether fisherman would be willing to take a medication that would take away the capacity to feel high when taking other drugs. For some, this was a selling point. After explaining hearing about this characteristic one fisherman simply replied, “Alright, I want it.” Those that were less ready to totally quit, were more reluctant. For example, this 38-year-old heroin user, explained, “I prefer the ones [the medication] that can allow me to get high sometimes. But if I really wanted to stop, I’d use naltrexone.”

Although the description of naltrexone they heard contained an overview of possible side effects, few study participants remarked on them. One study participant said he would not try naltrexone if it would cause stomach aches. On the other hand, this fisherman’s concerns about the dangers of naltrexone were easily allayed:

Fisherman: Oh ... Dangerous?

Interviewer: Those side effects are very rare. Hearing that would you be interested in receiving naltrexone treatment?

Fisherman: Oh ... dangerous. Okay, injection once a month, okay, like methadone every day. [I] can. I am more interested in this thing. Compared to Suboxone, methadone, I choose naltrexone.

Study participants volunteered opinions on how best to encourage use of depot naltrexone. They emphasized the importance of using human connections to gain trust. The first piece of advice was “friends follow friends.” Consistent with the many responses to methadone and Suboxone which included stories of friends’ experiences with the medications, interview subjects suggested that naltrexone could gain currency as fisherman taking naltrexone share their experiences with their friends: “They will see how my progress is with it. If they see I’m doing well with it, they will follow.” In the same vein, another suggestion was to bring people who have been through

the process of naltrexone treatment to explain their experience rather than relying on printed information. Finally, a third piece of advice was to enlist DIC Pahang, the aforementioned non-governmental organization, to communicate about naltrexone treatment. One fisherman argued that injection drug using fisherman would be more comfortable learning about naltrexone from DIC, a trusted source of information about ways of quitting.

### **Limitations of the study**

#### *Language and Translation*

As in any cross-language qualitative research, this study is limited by the difficulties of communicating with and understanding individuals with whom one does not share a language. Interpretation during the interviews was sometimes flawed or substantially incomplete, leading to misunderstandings in the course of the conversation. Subsequent translation of the interviews uncovered misinterpretations, but because of the confusion in these conversations between interviewer, interpreter and subject, it is not always clear what the subject intended to say.

An even more crucial problem is the difficulty of ascertaining the quality of the translation of the transcripts from Malay to English. This work was completed by individuals fluent in both languages, but without professional training in translation. Notably, all were elite college students, with very dissimilar backgrounds from the working class injection drug users interviewed for this study.

The question is whether the translations achieved “conceptual equivalence,” meaning that the translation is not just a word-for-word equivalence but matches the original statement’s intended meaning (Squires, 2009). Because, of necessity, many translators were used for this project, it is

difficult to test the quality of the work completed. Options for ensuring the fidelity of the translation, like having transcripts back-translated into Malay or having two individuals translate the same transcript might have been useful for confirming the quality of the work, but they were prohibitively time consuming and expensive with 5 translators' work to be tested.

### *Lying and Social Desirability Bias*

The fisherman in this study had good reason to give their interviewers the “right” rather than the truthful answer. First, for subjects in this study the interview was a potentially intimidating situation. They were being asked about sensitive, illegal activities by strangers representing themselves as researchers. Additionally, since the interviews may have seemed long and difficult, there was an incentive to give an answer that would satisfy the interviewers and move them closer to completion. Also, there was an incentive attached to the study, and subjects may have been motivated to give answers that would satisfy us for fear that answering otherwise would render them ineligible for the study. Finally, the fisherman may have felt a natural inclination to want to be agreeable simply as its own end.

Because this study was presented as an investigation of MAT, participants may have sensed a bias in favor of MAT (as opposed to other means of quitting) and been prone to express approval of MAT, regardless of their genuine feelings on the matter. In the final section of the interview, in which the fisherman was presented with a prepared description of methadone, Suboxone and naltrexone there is an especially acute risk of social desirability bias. The official-sounding descriptions, presented as “information from doctors and scientists,” may have swayed the

opinions not by virtue of their content, but just by virtue of coming from an authoritative-sounding source.

### *Sampling*

The sampling method was designed to provide a representation of a range of characteristics in our pool of subjects. The sample cannot be construed to be representative of the injection drug using fisherman of Kuantan in their entirety, or, even less, of similar populations elsewhere.

Because we used a former drug user with limited ties to current drug users as our recruiter, we may have oversampled people from within his social circle. That problem was avoided to a degree by insisting on including diverse subjects in the study representing both young and old, Kuantan resident and villager, and deep-sea and near-shore fishermen. Furthermore, by the end of the study, ties cultivated with former interviewees were such that future subjects were recruited by past interviewees. This means that our subjects were again in a limited social circle, but it was a different one from the circle our recruiter had contact with.

### **Conclusions**

The fishermen who participated in this study are struggling. They suffer from the pain of withdrawal. They strain to cover the costs of their drug habits and other expenses on meager salaries. They feel stymied from life goals, such as marriage and fatherhood, and they are ostracized by their communities. So, it is unsurprising that they have a great appetite for a solution to their drug problems.

Some of the fishermen who participated in this study were baffled at the problem of how to quit. Oftentimes, they had pursued many avenues to quitting illicit drugs, to no avail. Still, many had theories and opinions about the best way to quit. The participants in this study emphasized the importance of isolation from the temptations of drug use, having the “will to stop,” and religious practice for shielding themselves from the risk of relapse. Fishing work could be either protective or a risk factor. It might interfere with drug use, keeping one distant from a drug supply while away from sea, or it could lead one to being immersed in a tempting drug culture. Additionally, some cited the non-governmental organization DIC Pahang, the Malay shamans called bomohs, and the forced rehabilitation PUSPEN as paths towards quitting. Finally, medication-assisted treatment was, inevitably given the subject of this study, an often mentioned path towards ceasing illicit drug use.

The fishermen interviewed for this study knew of methadone and Suboxone, and most were personally experienced with those medications. The fishermen’s views on the status of methadone and Suboxone as treatments were mixed. Most saw methadone and Suboxone as worthy replacements to illicit drugs, but a considerable number of respondents felt that MAT and morphine and heroin were equivalent or even that MAT is worse than the drugs it is intended to replace.

Contrary to expectations going into this study, the fishermen interviewed were more prone to using methadone while going out on fishing expeditions than while living on dry land.

Methadone was a cost-saver and a replacement for heroin and morphine when those drugs were not feasible to bring along. Barriers to using methadone and Suboxone included scheduling

constraints due to their work schedules (attending daily methadone administration is impossible when you have to be out at sea for weeks at a time), transportation problems, beliefs that these modes of MAT cause grave side effects and concerns about their dependency-generating qualities.

There was cautious interest in naltrexone. Those that favored naltrexone tended to emphasize the convenience of once-monthly administration and the attraction of a novel treatment. The novelty of naltrexone, however, could also count as a disadvantage. Some were leery of trying an unfamiliar substance. Also, some feared the described side effects of naltrexone. Naltrexone's capacity to eradicate the high of illicit drugs was viewed with favor by those who felt ready to quit immediately and completely and disfavor by those who wished to have room to continue dabbling in illicit drug use.

Efforts to help deal with the injection drug problem among the fishermen of Kuantan must consider the barriers currently impeding fishermen from accessing treatment. The intervention must have an accessible schedule, be convenient to the jetty, and be inexpensive to its clients. Existing beliefs about the dangers of MAT must be dealt with sensitivity. Because the NGO DIC Pahang is a deeply trusted source of advice on quitting, anyone setting out to create an intervention for this population is advised to solicit the group's advice and support; getting the imprimatur of DIC would be a major advantage. If the intervention involves introduction of a new form of MAT, having a fellow drug user experienced in that form of MAT testify to its effects could also help gain the trust of potential clients of the intervention.

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## References

- Allison, E. H., & Seeley, J. A. (2004). Another group at high risk for HIV. *Science*, *305*(5687), 1104-1104.
- Bachireddy, C., Bazazi, A. R., Kavasery, R., Govindasamy, S., Kamarulzaman, A., & Altice, F. L. (2011). Attitudes toward opioid substitution therapy and pre-incarceration HIV transmission behaviors among HIV-infected prisoners in Malaysia: implications for secondary prevention. *Drug Alcohol Depend*, *116*(1-3), 151-157. doi: 10.1016/j.drugalcdep.2010.12.001
- Bergstrom, A., Kamarulzaman, A., Khalib, A. M., & Kah Sin, C. (2012). Malaysia Country Advocacy Brief -- Injecting Drug Use and HIV: United Nations Regional Task Force on Injecting Drug Use and HIV/AIDS for Asia and the Pacific.
- Bourgeois, P., & Schonberg, J. (2009). *Righteous dopefiend* (Vol. 21): University of California Press.
- Bruce, R. D., Govindasamy, S., Sylla, L., Kamarulzaman, A., & Altice, F. L. (2009). Lack of reduction in buprenorphine injection after introduction of co-formulated buprenorphine/naloxone to the Malaysian market. *Am J Drug Alcohol Abuse*, *35*(2), 68-72.
- Bruce, R. D., Kresina, T. F., & McCance-Katz, E. F. (2010). Medication-assisted treatment and HIV/AIDS: aspects in treating HIV-infected drug users. *AIDS*, *24*(3), 331.
- Central Intelligence Agency. (2013). The World Factbook. Retrieved April 28, 2013, from <https://www.cia.gov/library/publications/the-world-factbook/geos/my.html#>
- Chawarski, M. C., Mazlan, M., & Schottenfeld, R. S. (2006). Heroin dependence and HIV infection in Malaysia. *Drug Alcohol Depend*, *82 Suppl 1*, S39-42.
- Choo, M. (2009). *Project WAVES Status Report*. Centre for Excellence in Research on AIDS (CERiA). Kuala Lumpur, Malaysia.
- Choo, M. (2010). Strengthening Epidemic Intelligence in Malaysia: Fishermen in Kuantan. Kuala Lumpur, Malaysia: Centre of Excellence for Research in AIDS.
- De Maeyer, J., Vanderplasschen, W., Camfield, L., Vanheule, S., Sabbe, B., & Broekaert, E. (2011). A good quality of life under the influence of methadone: A qualitative study among opiate-dependent individuals. *International journal of nursing studies*, *48*(10), 1244-1257.
- Fischer, B., Chin, A. T., Kuo, I., Kirst, M., & Vlahov, D. (2002). Canadian illicit opiate users' views on methadone and other opiate prescription treatment: an exploratory qualitative study. *Subst Use Misuse*, *37*(4), 495-522.
- Friedman, J., & Alicea, M. (2001). *Surviving heroin: Interviews with women in methadone clinics*: University Press of Florida.
- Gourlay, J., Ricciardelli, L., & Ridge, D. (2005). Users' experiences of heroin and methadone treatment. *Subst Use Misuse*, *40*(12), 1875-1882.
- Horyniak, D., Armstrong, S., Higgs, P., & Wain, D. (2007). Poor Man's Smack: A qualitative study of buprenorphine injecting in Melbourne, Australia. *Contemp. Drug Probs.*, *34*, 525.
- Hunt, D. E., Lipton, D. S., Goldsmith, D. S., Strug, D. L., & Spunt, B. (1985). "It takes your heart": The image of methadone maintenance in the addict world and its effect on recruitment into treatment. *Subst Use Misuse*, *20*(11-12), 1751-1771.
- Johansson, B. A., Berglund, M., & Lindgren, A. (2006). Efficacy of maintenance treatment with naltrexone for opioid dependence: a meta-analytical review. *Addiction*, *101*(4), 491-503.
- Kayman, D. J., Goldstein, M. F., Deren, S., & Rosenblum, A. (2006). Predicting treatment retention with a brief "Opinions About Methadone" scale. *Journal of Psychoactive Drugs*, *38*(1), 93-100.
- Kirchmayer, U., Davoli, M., Verster, A. D., Amato, L., Ferri, A., & Perucci, C. A. (2002). A systematic review on the efficacy of naltrexone maintenance treatment in opioid dependence. *Addiction*, *97*(10), 1241-1249.

- Kissling, E., Allison, E. H., Seeley, J. A., Russell, S., Bachmann, M., Musgrave, S. D., & Heck, S. (2005). Fisherfolk are among groups most at risk of HIV: cross-country analysis of prevalence and numbers infected. *AIDS, 19*(17), 1939.
- Krupitsky, E. M., & Blokhina, E. A. (2010). Long-acting depot formulations of naltrexone for heroin dependence: a review. *Curr Opin Psychiatry, 23*(3), 210.
- Lin, C., Wu, Z., & Detels, R. (2011). Opiate Users' Perceived Barriers Against Attending Methadone Maintenance Therapy: A Qualitative Study in China. *Subst Use Misuse, 46*(9), 1190-1198.
- Marsch, L. A., Bickel, W. K., Badger, G. J., & Jacobs, E. A. (2005). Buprenorphine treatment for opioid dependence: the relative efficacy of daily, twice and thrice weekly dosing. *Drug Alcohol Depend, 77*(2), 195-204. doi: 10.1016/j.drugalcdep.2004.08.011
- Mathers, B. M., Degenhardt, L., Phillips, B., Wiessing, L., Hickman, M., Strathdee, S. A., . . . Toufik, A. (2008). Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review. *Lancet (London, England), 372*(9651), 1733-1745.
- Mattick, R. P., Ali, R., White, J. M., O'Brien, S., Wolk, S., & Danz, C. (2003). Buprenorphine versus methadone maintenance therapy: a randomized double-blind trial with 405 opioid-dependent patients. *Addiction, 98*(4), 441-452.
- Mattick, R. P., Breen, C., Kimber, J., & Davoli, M. (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev, 3*.
- Mattick, R. P., Kimber, J., Breen, C., & Davoli, M. (2008). Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *The Cochrane Library*.
- Metzger, D. S., Woody, G. E., & O'Brien, C. P. (2010). Drug treatment as HIV prevention: a research update. *Journal of acquired immune deficiency syndromes (1999), 55*(Suppl 1), S32.
- Philbin, M. M., & Zhang, F. (2010). Exploring stakeholder perceptions of facilitators and barriers to accessing methadone maintenance clinics in Yunnan Province, China. *AIDS Care, 22*(5), 623-629.
- Robinson, G., Dukes, P., Robinson, B., Cooke, R., & Mahoney, G. (1993). The misuse of buprenorphine and a buprenorphine-naloxone combination in Wellington, New Zealand. *Drug Alcohol Depend, 33*(1), 81-86.
- Rosenblum, A., Magura, S., & Joseph, H. (1991). Ambivalence toward methadone treatment among intravenous drug users. *Journal of Psychoactive Drugs, 23*(1), 21-27.
- Schottenfeld, R. S., Chawarski, M. C., & Mazlan, M. (2008). Maintenance treatment with buprenorphine and naltrexone for heroin dependence in Malaysia: a randomised, double-blind, placebo-controlled trial. *The Lancet, 371*(9631), 2192-2200.
- Squires, A. (2009). Methodological challenges in cross-language qualitative research: A research review. *International journal of nursing studies, 46*(2), 277.
- Stoller, K. B., Bigelow, G. E., Walsh, S. L., & Strain, E. C. (2001). Effects of buprenorphine/naloxone in opioid-dependent humans. *Psychopharmacology (Berl), 154*(3), 230-242.
- Suleiman, A. (2012). Malaysia 2012: Global AIDS Response Country Progress Report. In S. a. Ngadiman (Ed.).
- Vicknasingam, B., & Mazlan, M. (2008). Malaysian Drug Treatment Policy: An Evolution From Total Abstinence To Harm Reduction *Jurnal Antidadah Malaysia*(5), 107-121.
- Vicknasingam, B., Narayanan, S., & Navaratnam, V. (2009). The relative risk of HIV among IDUs not in treatment in Malaysia. *AIDS Care, 21*(8), 984-991.