

A Review of Substance Abuse Research in Malaysia

Norliza Chemi, MMed*, Norni Abdullah, MMed*, Anandjit Singh, MPM*, Mohd Fadzli Mohamad Isa, MPM**

*Department of Psychiatry, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur, **Department of Psychiatry, Hospital Tuanku Ja'afar, Jalan Rasah, 70300 Seremban

SUMMARY

This is a review of research done in the area of substance abuse in Malaysia. There were 109 articles related to substance abuse found in a search through a database dedicated to indexing all original data relevant to medicine published in Malaysia between the years 2000-2013. Only 39 articles were reviewed, and case series, case report, reviews and reports were excluded. Research reviewed include the epidemiology of substance abuse, genetics, treatment and its relation to health behaviour, and health management. Studies have shown that more males than females use drugs. There was also a high prevalence of blood-borne virus diseases and sexually transmitted diseases among drug users. Two studies showed some genetic polymorphism (Cyp 3a4 gene and FAAH Pro129Thr) among heroin and amphetamine users respectively that may contribute to drug dependence. Study on pharmacological treatment for substance abuse were limited to methadone and it was shown to improve the quality of life of heroin dependant patients. Alternative treatments such as acupuncture and spiritual approach play a role in the management of substance abuse. Data also showed that treatment centres for substance abuse are lacking facilities for screening, assessment and treatment for medical illness related to substance use, e.g. Hepatitis C and tuberculosis. Studies on the effectiveness of current drug rehabilitation centres were inconclusive.

KEY WORDS: *Substance abuse, Malaysia, review, genetics, treatment, outcome, rehabilitation*

INTRODUCTION

There is a great concern over drug addiction in Malaysia. The most commonly abused drugs in the country include heroin, methamphetamine and amphetamine type stimulants, kratom, cannabis and ketamine. The growing popularity of methamphetamine was of particular concern. Seizures as a result of this substance abuse were the highest on record over the last few years. However, opioid continues to be the most widely abused drug in the country but the abuse of other substances are also increasing.

Drug addiction has huge consequences to the individuals involved and their family. It has a devastating impact on the individuals' physical and mental health, as well as their psychosocial well-being. Drug addiction is also a heavy burden for the government because it needs a lot of enforcement from the authorities and drains available health care resources.

Until the late 1990s, treatment of drug addiction in Malaysia was mainly through the enforcement of rehabilitation in detention centres. However, the success of these programmes remains controversial due to the high post-detention relapse rate. Treatment of opioids dependence with substitution therapy were started in 2001 with buprenorphine and subsequently Methadone Replacement Therapy was introduced in 2005. The Methadone Replacement Therapy has been expanded and upscaled yearly to cover almost all health care centres throughout Malaysia by 2015.

Studies on addiction cover epidemiology, treatment, and health behaviour. In this review, single case studies, case series reports, reviews and registry reports were excluded.

SECTION 1: REVIEW OF LITERATURE

EPIDEMIOLOGY

The history of Malaysia's battle with its drugs problems are long. Various measures were introduced and this included the legislation of the Dangerous Act 1952¹.

A cross-sectional study to determine drug abuse among the youth found an unexpectedly high prevalence of depression among secondary school children in Selangor². Children who abused drugs were also prone to medical issues such as blood and genitourinary complications among solvent (glue) abusers³. The drugs issue is aggravated as even students of higher institution have low knowledge regarding the effects of drugs and a significant number of respondents have been exposed to an environment of rampant drug abuse⁴. This possibly explains the 0.22% of public university students who were abusing methamphetamines; a significant number of them have already been exposed to this environment, were of Malay origin, and have low to moderate incomes⁵. Mahmood Nazar and colleagues (2008) found that there was no significant difference in the level of substance and drug misuse between Malay and non-Malay youths; but males showed a higher tendency than females⁶.

Although the drug problem among women in Malaysia was comparably lower than among men, the state of Sabah had the most serious drug problems involving women. This was studied by Sabitha and colleagues (2007)⁷. Earlier, Rusli and colleagues (2001) who completed a study on sexually transmitted diseases (STDs) among female drug abusers in a rehabilitation centre in Kelantan, found a high prevalence of diseases such as syphilis. They suggested that female drug abusers go thorough screening for STDs⁸.

In terms of medical complications, Vicknasingam and colleagues (2009) found that drug users who were not in treatment had a high prevalence of contracting the Hepatitis C virus and this prevalence was higher in those who injected drugs. The most significant risk factors for contracting HIV among drug users who were not in treatment were the sharing of needles and lifetime homosexuality/bisexuality⁹.

Among the genetic studies conducted in Malaysia was a study on the polymorphism of Cyp 3a4 gene in heroin-dependant individuals and a mutation of the gene was noticed¹⁰. FAAH Pro129Thr polymorphism may contribute to methamphetamine dependence among Malay and Chinese in Malaysia¹¹.

With the rapid evolution of synthetic drugs, Ahmad Hatim and colleagues (2013) found high risks of psychotic and non-psychotic disorders in methamphetamine-dependant patients¹². Non-psychotic psychiatric co-morbidities were highly prevalent in patients with methamphetamine dependency especially among polysubstance abusers, those who have abused drugs for longer period, and those who have used a higher amount of drugs¹³.

There were also several studies on the epidemiology of traditional and cultural substance of abuse. In the Asian Betelquid Consortium (ABC) study, Lee and colleagues (2012), found that betel quid abuse were high in regions where it has become a customary practice and this abuse correlates highly with oral premalignant disorders (OPDs)¹⁴. The betel quid chewing behaviour in Malaysian adults was affected by gender, age, ethnicity and past smoking history, as well as the frequency and type of quid chewed¹⁵. The rates of men who chew betel quid were significantly higher than the rates among women in most Asian countries studied but the reverse was true in Malaysia and Indonesia. However, diverse cultural and demographic differences have contributed to the pattern of betel quid chewing in Asian region¹⁶. In another study, it was found that people who are dependent on betel quid had a higher pre-malignant risk compared to those who are not dependent¹⁷. Meanwhile, Ahmad and Aziz (2012) conducted a research on the characteristics of *mitragyna speciosa* in the northern states of Malaysia especially regarding its pattern of use, its effects and its potential for addiction¹⁸.

TREATMENT AND OUTCOME

Treatment of addiction in general includes pharmacological and psychosocial approaches. The only illicit substance with established pharmacological treatment is opioid. The main approach of treatment for other substances such as amphetamine and marijuana inhalants are mainly psychosocial using matrix module, motivational interviewing technique, 12 steps approach, etc.

Ahmad H *et al* studied the efficacy and safety of aripiprazole for treatment of psychosis, retention and abstinence in patients with methamphetamine dependence. The study showed that aripiprazole was no more effective than placebo in maintaining abstinence from methamphetamine use. However, it facilitated treatment retention and reduced the severity of psychotic symptoms. Aripiprazole was found to be generally safe and well tolerated¹⁹.

Studies on the pharmacological treatment of opioids involved methadone and acupuncture. Lua *et al* studied the clinical outcomes of methadone maintenance treatment (MMT) alone and MMT plus AA (MMT+AA) in terms of the daily methadone dose, number of cigarettes smoked/week, relapse rates, and

withdrawal symptoms. The findings implied that AA could be beneficial as an adjunct to MMT in managing addiction, but the effectiveness of AA still requires further extensive investigation²⁰. In another study, Lua *et al* looked into patient satisfaction level and preferred coping strategies among MMT patients in addition to AA intervention; and found that addition of AA did not influence patient satisfaction and their coping ways²¹.

Mahmood Nazar M *et al* studied drug substitution therapy; the success and limitations of the methadone and buprenorphine maintenance programmes. The study looked at GPs' adherence to the Ministry of Health-prescribed maintenance protocols, the number of clients/patients under the Drug Substitution Therapy (DST), psychosocial intervention given and record keeping. They found more than 50% of the respondents reported benefits of the therapy; however incidences of non-adherence among the GPs were also identified. More importantly, almost half of the respondents reported abusing the substitute therapy by injecting and mixing with other substances²².

A study on the perception of residents who were currently undergoing the drug rehabilitation programme at the Serenti Centre revealed that there was no correlation between the age of the residents and the perception of the effectiveness of the counselling sessions offered to them. However, there was a significant correlation between the number of counselling hours and the effectiveness of the counselling sessions. In addition, this study revealed that respondents who had high self respect perceived the counselling sessions to be effective²³.

STUDIES WITH CLINICAL OUTCOME

Clinical Studies

Chan KB, Pakiam C and Rahim RA used the gas-chromatography method to definitively identify the presence of mitragynine as the principle psychoactive component in suspected substances²⁴. Opium addicts with clinically significant biliary symptoms should not be excluded for Endoscopic Retrograde Cholangiopancreatography (ERCP) although Common Bile Duct (CBD) dilatation is common among them²⁵. In a cross-sectional study involving 26 drug rehabilitation centres in Malaysia, the prevalence of HIV was high among those who used drugs intravenously, shared needles, and had sexual exposure with prostitutes²⁶.

Health Behaviour

Motivation to change the drug dependent behavior is important but this is affected by the severity of psychopathological symptoms. As confirmed in a study by Wan Shahrazad and colleagues (2011), high level of psychopathology among in-treatment drug addicts may compromise their motivation to change²⁷. Lua, Talib and Selamat (2011) found that drug abusers were ready to adopt positive behavioural changes regardless of their socio-economic backgrounds²⁸. A study about personality traits for readiness to change was done by Wan Shahrazad and colleagues (2010)²⁹. Saedah and colleagues (2008) did a study to look at the functions of family to improve the self-esteem of drug addicts³⁰. Stressful home environment and peer influence were some of the external factors influencing youngsters into sniffing glue³¹. Mohd (2007) did a study to investigate the relationship between the age of onset for delinquent behavior and chronic drug abuse among adolescents³². The results show that the majority of chronic drug abusers began their involvement in delinquent behaviours at a significantly early age than the non-chronic

abusers. There was a study by Chan, Maniam and Suriati (2013) to look at the association between substance abuse and suicidal behavior³³. They found that illicit drug use was associated with suicidal ideation, suicidal plan and deliberate self harm. Muhammad Muhsin and colleagues (2010) from Universiti Malaya attempted a study of the association between HIV infection and psychiatric disorders among prisoners in whom mental illness, substance abuse and HIV were disproportionately represented³⁴. The readiness for change among female drug users admitted to drug treatment and rehabilitation centres was studied by Najwa, Sabitha and Mahmood Nazar (2008)³⁵. Meanwhile, a study in the district of Tampin, Negeri Sembilan, found that there was a significant short-term improvement in the quality of life among MMT clients who stayed in the programme for at least 6 months³⁶.

Health Management

Management of addiction problems in Malaysia was introduced decades ago; and these are run by governmental and non-governmental agencies. The management includes treatment, rehabilitation and relapse prevention programmes. The programmes include interventions in the rehabilitation centres and among the community. The programmes are voluntary and involuntary. However, there are not many studies on the effectiveness of addiction treatment in rehabilitation centres in Malaysia.

In 2011, Fauziah et al studied the effectiveness of narcotics rehabilitation programme in Malaysia. They looked at the functionality, productivity and relapse rate of the addicts after the treatment and rehabilitation. They concluded that to improve the effectiveness of a rehabilitation centre in Malaysia, drug counsellors need to strengthen their modules, activities and programs and also to have more trained counsellors in every district. The extended care program and supervisions should also involve the community to ensure the effort to eradicate relapsed addictions were successful³⁷.

Many of the detainees in Malaysian rehabilitation centres were identified to have chronic infection and infectious diseases such as HIV, and Hepatitis B and C. Al-Darraj et al, conducted a study on 196 patients in one drug treatment centre in Malaysia in 2013, and found 4.6% of them were HIV-infected and the prevalence of positive tuberculin skin test (TST) was 86.9%³⁸. The actual prevalences of both latent TB infection (LTBI) and active disease in drug treatment centres in Malaysia were unknown. Therefore, there is an urgent need to establish TB screening and treatment programs in substance abuse treatment centres. Continuation of care for infectious disease in rehabilitation centres is also important.

In 2012, Fu et al, identified a lack of access to antiretroviral therapy in two of the six compulsory drug detention and rehabilitation centres in Malaysia. They found significant, unmet health needs among detainees with HIV. Individuals under such conditions are at a considerably high risk for morbidity and mortality³⁹.

Syed et al. (2009), studied chronic infections and management setting in drug addicts of MMT programme in Penang, Malaysia. They looked at the prevalence of blood-borne chronic infections, the quality of health of respondents active in the MMT program and possibly predict the risk reduction of relapse during treatment. They found that 2.3% were positive for HIV/AIDS, 76.3% for Hepatitis C, and 3.3% for Hepatitis B. About 38% of respondents had impaired liver function. The risk combination of Hepatitis C with impaired liver function involved 39.5% of respondents. None of them received any

supportive management treatment for their current chronic infections. With these findings, the authors highly recommended producing necessary resources for the management treatment of drug addicts for such chronic infection. Further delay can possibly increase the risk of transmitting the infection within the society⁴⁰.

In addition, spirituality also play an important role in the treatment of addiction in Malaysia. Dara et al (2013), studied the implementation and effectiveness of drug treatment and rehabilitation programmes at Pondok Inabah, a legally set up establishment of the Anti-Drug Association of Malaysia or Persatuan Mencegah Dadah Malaysia (PEMADAM). They found the spiritual approach in the drug addiction treatment and rehabilitation to be one of the best component implemented by this centre. The holistic approach in the management of addiction in Malaysia is very important to improve the outcome of the treatment. More specific research in this area are needed⁴¹.

SECTION 2: RELEVANCE OF FINDINGS FOR CLINICAL PRACTICE

Most of the studies published in Malaysia during the last decade focused on illegal substances. Unfortunately, the issue and problem regarding cannabis was not addressed. However, at the same time, we must not forget the problems brought on through the use and abuse of 'legal' substances such as nicotine and alcohol. What is more pertinent was the lack of data on the prevalence and incidence of the substances being abused in the country. There was also a huge aperture in studies that addressed the outcomes of treatment for substance abuse. Most of the available studies on this were related to methadone for the treatment of opioid dependency.

SECTION 3: FUTURE RESEARCH DIRECTION

The changing trend of drug problems from traditional drugs of abuse such as cannabis and opioids towards synthetic drugs such as methamphetamine and Amphetamine-type Stimulants (ATS) reveals the need to move in that direction. Future studies should focus on these changes from opioid-based substances to recreational drugs such as MDMA (3,4-methylenedioxy-N-methylamphetamine) that is widely used socially, thus suggesting future epidemiological and clinical research studies addressing the prevalence of synthetic drugs. There should be more collaboration with law enforcement agencies such as the police and Agensi Anti Dadah Kebangsaan to establish data on prevalence of ATS, and other drugs abused in Malaysia. More attention should be given to studying special populations who abused drugs such as prison inmates, female drug abusers and homosexual/bisexual drug abusers, as well as the scope of issue covering drug abuse, HIV/AIDS and mental health problems. Outcomes of substance abuse treatment should be studied in detail to evaluate and ensure the effectiveness of current approaches. New treatment modalities are another aspect to be explored as drug problems become more complicated and are intertwined with more biological and psychosocial factors. However, we should expand our knowledge on substance abused such as kratom and betel quid which are specific to our region. The possibility of using kratom as a drug replacement therapy for opioids dependency should be properly and extensively studied. Efforts to determine the co-morbid mental illness among drug abusers seeking treatment must be intensified.

ACKNOWLEDGEMENT

We would like to sincerely thank the Director-General of Health, Malaysia for his permission to publish this paper. We wish to thank the Clinical Research Centre team for its contribution and support.

REFERENCES

- Abdul Rani K. The misuse of drugs in Malaysia: past and present. *Malaysian Anti-Drugs Journal* 2007; (1): 1-24.
- Adlina S, Suthahar A, Ramli M, *et al*. Pilot study on depression among secondary school students in Selangor. *Med J Malaysia* 2007; 62(3): 218-222.
- Zabedah MY, Razak M, Zakiah I, *et al*. Profile of solvent abusers (glue sniffers) in East Malaysia. *Malays J Pathol* 2001; 23(2): 105-109.
- Kamarudin H, Abd Majid MI, Abdull Halim A, *et al*. A study of drug abuse among new students of institutions of higher learning. [Kajian pengaruh dadah dalam kalangan pelajar baru institusi pengajian tinggi.]. *Malaysian Anti-Drugs Journal* 2007; (2): 1-12.
- Kamarudin H, Abd Majid MI, Abdull Halim A, *et al*. A study of drug abuse among students in the public institutions of higher learning. [Kajian penyalahgunaan dadah bagi pelajar lama institusi pengajian tinggi awam.]. *Malaysian Anti-Drugs Journal* 2008; (3): 153-173.
- Mahmood Nazar M, Sabitha M, Nadiyah E, *et al*. Pattern of substance and drug misuse among youth in Malaysia. *Malaysian Anti-Drugs Journal* 2008; (3): 1-56.
- Sabitha M, Mahmood Nazar M, Rosnah I. Trend dan punca penggunaan dadah di kalangan penagih dadah wanita di negeri Sabah: implikasi kepada rawatan dan pemulihan dadah. *Malaysian Anti-Drugs Journal* 2007; (2): 111-136.
- Rusli N, Abdul Rahman I, Mohamed Rusli A. Prevalence of sexually transmitted diseases among new female drug abusers in a rehabilitation centre. *Malays J Med Sci* 2001; 8(2): 9-13.
- Vicknasingam B, Narayanan S, Navaratnam V. Prevalence rates and risk factors for hepatitis C among drug users not in treatment in Malaysia. *Drug Alcohol Rev* 2009; 28(4): 447-454.
- Nasir M, Nurfadhilina M, Nazila I, *et al*. High frequency of CYP3A4* 1B among opiate dependent patients in Malaysia. *Journal of Addiction Research & Therapy* 2012; 3(3): 1000130.
- Sim MS, Hatim A, Reynolds GP, *et al*. Association of a functional FAAH polymorphism with methamphetamine-induced symptoms and dependence in a Malaysian population. *Pharmacogenomics* 2013; 14(5): 505-514.
- Ahmad Hatim S, Mas Ayu S, Mohd Hussain H, *et al*. The risk and associated factors of methamphetamine psychosis in methamphetamine-dependent patients in Malaysia. *Compr Psychiatry* 2013;
- Ahmad Hatim S, Mas Ayu S, Gill JS, *et al*. Non-psychotic psychiatric comorbidities in patients with methamphetamine dependence in Malaysia. *International Medical Journal (Tokyo)* 2013; 20(4).
- Lee CH, Ko AM, Warnakulasuriya S, *et al*. Population burden of betel quid abuse and its relation to oral premalignant disorders in South, Southeast, and East Asia: an Asian Betel-quid Consortium Study. *Am J Public Health* 2012; 102(3): e17-24.
- Ghani WM, Razak IA, Yang YH, *et al*. Factors affecting commencement and cessation of betel quid chewing behaviour in Malaysian adults. *BMC Public Health* 2011; 11: 82-2458-11-82.
- Lee C, Ko AM, Warnakulasuriya S, *et al*. Inter-country prevalences and practices of betel-quid use in south, southeast and eastern Asia regions and associated oral preneoplastic disorders: an international collaborative study by Asian betel-quid consortium of south and east Asia. *Int J Cancer* 2011; 129(7): 1741-1751.
- Lee CH, Ko AM, Yen CF, *et al*. Betel-quid dependence and oral potentially malignant disorders in six Asian countries. *Br J Psychiatry* 2012; 201(5): 383-391.
- Ahmad K, Aziz Z. Mitragnyna speciosa use in the northern states of Malaysia: a cross-sectional study. *J Ethnopharmacol* 2012; 141(1): 446-450.
- Ahmad Hatim S, Gill JS, Mas Ayu S, *et al*. A randomized, placebo-controlled trial of aripiprazole for the treatment of methamphetamine dependence and associated psychosis. *Int J Psychiatry ClinPract* 2013; 17(2): 131-138.
- Lua PL, Talib NS. Auricular acupuncture for drug dependence: an open-label randomized investigation on clinical outcomes, health-related quality of life, and patient acceptability. *Altern Ther Health Med* 2013; 19(4): 28-42.
- Lua PL, Talib NS, Ismail Z. Methadone Maintenance Treatment Versus Methadone Maintenance Treatment Plus Auricular Acupuncture: Impacts on Patient Satisfaction and Coping Mechanism. *J Pharm Pract* 2013.
- MahmoodNazar M, Muhamad Dzahir K. Drug substitution therapy: success and limitations of the methadone and buprenorphine maintenance programmes. *Malaysian Anti-Drugs Journal* 2007; (1): 25-72.
- Zulkhairi A, Mahmood Nazar M. Effectiveness of counselling and drug rehabilitation programme: perspective of the inmates of PusatSerenti. *Malaysian Anti-Drugs Journal* 2007; (2): 13-28.
- Chan KB, Pakiam C, Rahim RA. Psychoactive plant abuse: the identification of mitragynine in ketum and in ketum preparations. *Bull Narc* 2005; 57(1-2): 249-256.
- Chuah SY, Leong CK, Pang CW. Dilated common bile duct in opium addicts with and without biliary symptoms --implication for research in AIDS cholangiopathy. *Singapore Med J* 2003; 44(5): 261-267.
- Fauziah MN, Anita S, Sha'ari BN, *et al*. HIV-associated risk behaviour among drug users at drug rehabilitation centres. *Med J Malaysia* 2003; 58(2): 268-272.
- Wan Shahrazad WS, Roselizamurni AR, Lukman ZM, *et al*. Psychopathological profile and readiness to change among drug addicts in Malaysia. *World Applied Sciences Journal* 2011; 12: 29-34.
- Lua PL, Talib N, Selamat N. Readiness for behavioural change and its relation to health-related quality of life in opiod dependents patients. *Malaysian Journal of Psychiatry* 2011; 20(2): 15-29.
- Personality traits and readiness to change among drug addicts in Malaysia. *Research Journal of Applied Sciences* 2010; 5(4): 263-266.
- Saedah AG, Zainah AZ, Roselina Murni AR, *et al*. Family functioning and its relation with self-esteem among drug addicts. *Malaysian Anti-Drugs Journal* 2008; (3): 91-106.
- Mohammad Shahid I, Mahmood Nazar M. Teenage glue sniffers: family and peer influence. *Malaysian Anti-Drugs Journal* 2007; (1): 131-152.
- Mohd MS. The relationship between the age of onset for delinquent behavior and chronic drug abuse among adolescents. *Malaysian Anti-Drugs Journal* 2007; (2): 97-110.
- Chan LF, Maniam T, Suriati MS, *et al*. Sexual abuse and substance abuse increase risk of suicidal behavior in Malaysian youth. *Asia Pac Psychiatry* 2013; 5(Suppl 1): 123-126.
- Muhammad Muhsin Z, Bae WH, Nor Zuraida Z, *et al*. Psychiatric and substance abuse comorbidity among HIV seropositive and HIV seronegative prisoners in Malaysia. *Am J Drug Alcohol Abuse* 2010; 36(1): 31-38.
- Najwa MR, Sabitha M, Mahmood Nazar M. Motivation to change among drug dependent women undergoing rehabilitation. *Malaysian Anti-Drugs Journal* 2008;(3): 235-277.
- Nizam B, Mohd Rohaizat H, Norsiah A, *et al*. Improvement of quality of life following 6 months of methadone maintenance therapy in Malaysia. *Subst Abuse Treat Prev Policy* 2012; 7: 32-597X-7-32.
- Fauziah I, Bahaman AS, Subhi N, *et al*. The effectiveness of narcotics rehabilitation program in Malaysia. *World Applied Sciences Journal* 2011; 12: 74-79.
- Al-Darraj HA, Wong KC, Yeow DG, *et al*. Tuberculosis screening in a novel substance abuse treatment center in Malaysia: Implications for a comprehensive approach for integrated care. *J Subst Abuse Treat* 2014 Feb; 46(2): 144-9.
- Fu JJ, Bazazi AR, Altice FL, *et al*. Absence of antiretroviral therapy and other risk factors for morbidity and mortality in Malaysian compulsory drug detention and rehabilitation centers. *PLoS One* 2012; 7(9): e44249.
- Syed Wasif G, Syed Azhar SS. Chronic infections and management setting in drug addicts of MMT program in Pinang, Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health* 2009; 1(2): 48-54.
- Dara Aisyah, H.M. Ali Puteh, Ibrahim M, Norizan AG, *et al*. Drug addict treatment and rehabilitation programme at Pondok Inabah, Kuala Terengganu, Terengganu, Malaysia (1998-2011). *British Journal of Social Sciences* 2013; 1(5): 37-46.