

Scheduled Substances as a Cause Leading to Dangerous Drug Abuse

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Abstract

Introduction: Products containing scheduled substances such as psychotropic pills, cough medicines and *Mitragyna speciosa* (*ketum*) had been frequently abused. The widespread abuse of products containing scheduled substances was often perceived as less threatening compared to the pandemic issue of illicit dangerous drugs use. Nevertheless, in view of the easy access and frequent diversion of these products, there is a need to determine whether the abuse of these items had triggered more serious addiction problems involving more harmful drugs such as opiates and amphetamine-type substances (ATS).

Objective: This study aimed to explore the factors of scheduled substances abuse and the role of scheduled substance abuse in the progression towards illicit dangerous drug use.

Methods: Face-to-face interview sessions were held in Karangan Cure & Care Clinic, Kedah. Interviews were conducted until the point of data saturation. Interviews were audio-recorded, transcribed verbatim, and the data was analysed and grouped into themes.

Results: Thirty clients were interviewed and 14 of them had experiences with scheduled substances abuse. Two main products containing scheduled substances – cough preparations (dextromethorphan and diphenhydramine) and *ketum* were most frequently abused by the subjects. The abuse was driven by several socioeconomic factors and catalysed by the easy access and affordability of these products. These scheduled substances caused dependence and withdrawal effects. Over time, the abuser may develop tolerance and need higher dose or stronger stimulants and therefore may lead to dangerous drugs use. Also, scheduled substances and dangerous drugs may be abused at the same time to obtain different effects, or used interchangeably when any of the items was unavailable.

Conclusion: The easy access and affordability of scheduled substances may contribute to their abuse especially among the youths. The addictive potential of scheduled substances, although considered to be less hazardous, may eventually lead to the abuse of dangerous drugs.

Keywords: scheduled substances abuse, kratom, *ketum*, *Mitragyna speciosa*, cough medicine, illicit use of dangerous drugs

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Introduction

Illicit drug use is the use of psychoactive substances for purposes other than medical reasons. It is estimated that a quarter billion people used illicit drug globally. In 2013, 27 million people were suffering from drug dependence¹. In Malaysia, there were 20,289 new cases of detected drug users in 2015, with a cumulative of 413,754 cases since 1988². In 2015, the National Anti-Drug Agency (NADA) reported that 20,295 youths were suffering from drug addiction problem, and this included children as young as seven years old, which illustrates the gravity of the phenomenon². According to the same report, the top causes of addiction stated by the addicts were curiosity and peer pressure². Most documented drug addicts were reported to be in the economically productive ages of 25 to 29 years old. As a consequence, the government spent more than RM 322 million in 2015 in managing the addictions². The severity of addiction problem could have been the consequence of easy accessibility to the substances and reflects the emerging prescription and over the counter (OTC) drug abuse epidemic³.

Scheduled substances such as *Mitragyna speciosa* (colloquially known as kratom, or *ketum* in Malay language), psychotropic pills and cough preparations are actively regulated by the Pharmacy Enforcement Division, Ministry of Health Malaysia under the provision of Poison Act 1952. Psychotropic pills and cough preparations are prescription and over the counter (OTC) items that are frequently the targets of diversion due to its easy access. As these items can be obtained legally, they are perceived to be of lower risk than the drugs obtained illegally. Prescription and OTC drug abuse has emerged as an alarming global problem⁴. In the United States, a survey in 2010 found approximately 2.4 million people were using prescription drug for non-medical purposes⁵. The survey also found that prescription drug abuse was most prevalent among youths aged between 18 to 25 years old⁵. It was reported that many teens believe that prescription drugs are safer because it is legal in the market and this contributed to the growing pandemic⁶.

In view of the relatively high availability and frequent diversion of *ketum*, psychotropic pills and cough preparations, there is a need to determine whether and to what extent the abuse of these items had triggered more serious addiction problems involving more harmful drugs such as opiates and amphetamine-type substances (ATS). The objective of the study was to explore the factors of scheduled substances abuse and the role of scheduled substance abuse in the progression towards illicit dangerous drug use.

Methods

The study was carried out between February 2016 and December 2016. The sample of the study includes a group of clients who are receiving treatment at the Karangan Cure & Care Clinic, Kedah. Cure & Care clinics are facilities providing voluntary rehabilitation and drug addiction recovery services that are managed by the NADA Malaysia. The study included clients aged 18 years and above and was actively under the follow-up of Karangan Cure & Care Clinic, Kedah during the study period. Clients who refused to participate in the study, clients with mental condition compromised by previous history of substance abuse and clients who possessed below average or limited communication skills were excluded from the study.

Phenomenological approach in qualitative analysis was used in this study. The selection of interviewees was based on convenience sampling and the participants were chosen at random by the facilitator. The clients were interviewed until the point of saturation is reached and no new information is obtained.

Data was collected through face-to-face interview by using an interview guide involving four interviewers in one occasion. The interview sessions lasted between 2 to 15 minutes. All interviews were audio recorded after getting signed consent from the clients. The interviews were kept as audio files. The audio records of the interviews were then transcribed verbatim. This was followed by

verification process by the interviewers. The data obtained were then coded and organised into themes which were then interlinked in order to construct a theoretical framework.

In this study, scheduled substances befits the definition of 'Poison' as per outlined in the Malaysian Poison Act 1952 (Act 366) which stated that '*any substance specified by the name in first column of the Poisons List (First Schedule) and includes any preparation, solution, compound, mixture or natural substance containing such substance, other than an exempted preparation or an article or preparation included for the time being in the Second Schedule*'. Meanwhile, dangerous drug is defined as per outlined in Malaysian Dangerous Drug Act 1952 (Act 234) which stated that '*any drugs or substances which is for the time being comprised in the First Schedule (of this act)*'⁷.

Results

Demography

Thirty clients aged between 18 and 21 (mean=19.5) years old were interviewed, in which 14 clients (C1-C14) had experiences with scheduled substances abuse. All these 14 participants were male, and 13 of them were of Malay ethnicity. Out of these 14 clients, most of them (11 clients) completed secondary school and the highest qualification was technical certificate from local skills development institute (2 clients). Majority of the clients (9 clients) were from suburban area and about half (8 clients) of them are from underprivileged families. Patients' demographic characteristics were summarised in Table 1. Most of the interviewees were involved with drugs during their secondary school period, but several were as early as 11 years old. Generally, the clients were from families with parents of working group category with moderate to low income earnings.

Table 1: Demographic characteristics of clients with experience of scheduled substances abuse (N=14)

Characteristics	n (%)
Ethnicity, n (%)	
Malay	13 (92.9)
Indian	1 (7.1)
Education level, n (%)	
Technical certificate	2 (14.2)
Secondary	11 (78.6)
Primary	1 (7.1)
Locality, n (%)	
Urban	5 (35.7)
Suburban	9 (64.3)
Family socioeconomic status, n (%)	
Subpar	8 (57.1)
Moderate	6 (42.9)
Affluent	0 (0)

Thematic content analysis

The thematic content analysis identified five major themes namely factors triggering substance abuse, accessibility and affordability of scheduled substances, type of scheduled substances used and illicit abuse of dangerous drug, dependence or habit-forming effects and lastly the ramification of the substance addiction. Descriptive of each theme with illustrative excerpts from the interviews between the clients (C) and interviewers (I) were as the following.

Theme 1: Factors triggering scheduled substance abuse

Peer influence and curiosity has been reported as the main causes of involvement in drug abuse in which the clients said:

- C5: I first became involved with drugs because (I was) influenced by a friend. I just knew that friend...but out of curiosity... After I tried, I became addicted.
- C8: Influence from friends, after hanging out (with them) I feel the urge to try. After that (I) want to try other things.

Besides that, the clients also admitted taking it for recreational use, for its euphoric and dissociative effect as well as an energy boost to perform more physical works.

- C8: (I take the substances) just for fun. (Just for) Excitement.
- C10: Our body will become sleepy, become 'high'.
- C3: (So that) When (I) do work (I would) become energetic.

In addition, consumption of certain scheduled substances such as *ketum* is perceived as socially acceptable and not deemed harmful due to the fact that it is commonly and openly consumed by the public, especially among the communities of which the interviewees belong to.

- C7: Many are taking it. (Many) Villagers (are) taking it. (Especially) *ketum*.

Theme 2: Accessibility and affordability of the scheduled substances

Scheduled substances are easily accessible mostly due to illicit scheduled substances supply activities by health care providers such as clinics and pharmacies. According to the clients, sometimes scheduled substances such as cough medications were sold with minimal restrictions by some pharmacies and clinics, resulting in easy and continuous supply of scheduled substances intended for abuse. The clients had also attributed the constant supply of scheduled substances to their network of friends and acquaintances. The multiple sources or sellers of these substances ensured virtually limitless supply and opened up more opportunities for scheduled substances abuse.

- C1: Nowadays there are many places selling. Easy (to get).
- C4: Cough medicine can be obtained from clinic and pharmacy. Easy to get. I buy 3 bottles at a time.
- C9: Cough medicines, ah, I ordered them from my friends.
- C12: A lot of pharmacies, a lot. A lot of pharmacies are selling (cough medicines).
- C14: You can get it (*ketum*) anywhere you go.

Besides that, scheduled substances were relatively cheap and thus making it affordable and prone to abuse.

- C3: (*Ketum*) are sold at RM5.00 per packet. For smaller packets it is sold at RM 3.50 and RM 2.50.
- C8: *Ketum* are obtained from nearby (seller). It is cheap, RM5.00. Cough medicine RM7.00 (per bottle). Dynadryl (diphenhydramine) RM7.00, Nospan (dextromethorphan) are RM0.70 per tablet.

The supply of cough medicines without proper screening and assessment by some healthcare professionals could imply the compromises they sometimes made against their professional ethics and social responsibilities. This may have contributed to the ubiquity of the scheduled substances for abuse.

- C7: (If you) Go frequently also they (will) sell, (if you are) not coughing also they (will) sell.
- C8: The largest amount I used to buy was 20 tablets (Nospan), 2 bottles of cough medicine. (Even though I) Went everyday also the pharmacy (will) sell.

According to most of the clients interviewed in this study, *ketum* is stated as the easiest scheduled substance to be acquired as it could be agriculturally cultivated and self-prepared without having to depend on the supplier.

C12: Sometimes I boil (the *ketum* leaves) myself. I plant the tree.

I: When did you start taking *ketum*? At 13 years old? When you were 13 years old?

C3: (*Nod in agreement*).

Theme 3: Type of scheduled substances abused and illicit use of dangerous drug

Upon questioning on types scheduled substances abused by the clients (if any), most of them admitted taking *ketum*.

C3: At first I smoke cigarette. After that I take *ketum*.

C11: I drink *ketum*.

Besides *ketum*, cough medicines were also frequently abused. Two types of cough medicines were commonly abused which were antitussive such as dextromethorphan (Nospan) tablet and expectorants such as diphenhydramine (e.g. Benadryl, Dynadryl, Uphadyl) cough syrups. The cough medicines are usually either consumed alone or mixed together with *ketum*.

C12: At first I take Nospan.

C6: I usually take *ketum* mixed with cough medicines.

During the interview, clients had described *ketum* as a stimulant by nature and reported to increase alertness and energy level of the consumer. However, mixture of cough medicines and *ketum* is claimed to produce different sensation as it will exert numbness, drowsiness and increase the potential for dissociative or hallucinogenic effect on the abuser.

C10: After I take *ketum* (I) cannot sleep. It's energetic. If heroin it causes sleepiness. (When I take) *ketum* with cough medicine it will cause sleepiness. (Taking) *Ketum* alone will not cause sleepiness. (My) Body feels energetic. When mixed (with cough medicine) (my) body (will) become numb and drowsy.

In this study, none of the clients mentioned involvement in the abuse of psychotropic pills such as drugs of benzodiazepine class or any opioid substances. When probed further on their history of scheduled substance use, almost all clients admitted of being involved in scheduled substances abuse prior to shifting to the illicit use of dangerous drugs.

C3: I took it (*ketum*) for a while, about 10 months. (I) Drank *ketum*. After that I stopped. I stopped and then I switched to 'medicine' (heroin).

C4: I took heroine (after *ketum*).

C10: (I took *ketum*) For about 2 months, and then I started taking methamphetamine.

C13: And then, umm, after (taking) cough medicine, I took ice (methamphetamine).

In terms of dangerous drugs, the most abused drugs reported by the clients were heroin followed by methamphetamine, cannabis (*ganja*) and benzodiazepines. When clarifying on the shift from scheduled substance use to illicit dangerous drug use, one of the clients explained that the use of dangerous drugs is to step up the euphoria achieved from previous scheduled substance abuse.

C11: I searched for it (heroin) by myself. (Just) Drinking *ketum* is not satisfying.

A few clients stated that the use of dangerous drugs can fill the gap due to absence of scheduled substance and act as a replacement for scheduled substances abuse, while several others were taking them for recreational purposes. It was also found that many of them abused multiple

substances at the same time instead of abusing just one particular substance exclusively. The clients claimed that different substances would give different effects. Consuming multiple types of substances also enabled them to adapt with product unavailability.

C3: (from *ketum* to heroine) There was shortage of *ketum* supply.

C8: (from *ketum* to *ganja*) I just tried everything.

Theme 4: Dependence / habit-forming effects

During the interview, the clients were asked if scheduled substances being abused were able to induce addiction. Scheduled substances, especially *ketum*, were reported to create constant urge for the substance among the abusers, resulting in the prolonged use of *ketum* and led to dependence. Several clients claimed *ketum* consumption affected their social and occupational functionality.

C4: Previously I took *ketum* to help me with my work. If it is absent, I could not lift even slightly heavier loads. I was working at a sawmill back then. I could lift 20, 30 kilo(gram) loads (with *ketum*).

C9: (Without *ketum*) I cannot do any work, I will keep sleeping.

Attempts to stop *ketum* consumption were futile and the urge to consume the scheduled substances were reported to be irresistible.

C7: The hardest one to stop taking, *ketum*.

C8: No, if I do not take it (cough medicine), I feel 'empty', I must take it.

Additionally, many of the clients informed that *ketum* and cough medicines caused dependence and withdrawal effects when the substances were not taken. Some of the clients even described that the withdrawal effect of taking *ketum* is comparable to and at times, worse than the withdrawal effect induced by heroine.

C1: (When not taking *ketum*), I will feel headache and unhappy.

C4: (*Ketum*) got (withdrawal effect), feeling ill similar to heroine.

C5: When I drink (*ketum*), and after a while when the effect weaned off, my body will become shaken and starts sweating.

C6: *Ketum* addiction is worse than heroine. It causes vomiting. (I) cannot wake up and feel that my body cannot do anything. (If) heroine, feels like feverish and chill, after long bath (I will) feel okay and then after around five minutes it (will) recur.

Abusing scheduled substances also led to a more serious addiction problem involving dangerous drugs because over time, the abuser will develop tolerance and need higher dose or stronger stimulants.

C4: One day (abuser) will (need to) take stronger drug, because I already take *ketum*, for example two Coca-Cola's bottles (size) daily, (it is) not enough, I feel want to take heroine, because heroine and *ketum*, the euphoric effect is almost the same.

Theme 5: The ramification of substance addiction

According to the interview, our clients were aware of the detrimental effects of substance abuse, but it was preceded by the stronger desire to have fun and feel the euphoric effects.

C6: Before started (consuming) I did think about health (concern). But once tried, I do not care about (the) harm anymore, just think about fun.

Once they were involved in substance abuse, the clients admitted that they were hooked in the void of addiction and could not overcome the desire.

C4: If (we) talk about drugs, it is never (enough to) satisfy.

One of the clients had admitted that he had frequent asthma attack when he was involved in substance abuse but his health deterioration did not stop his addiction to substance abuse.

C8: I used inhalers before (when taking drugs), but now I'm not taking any drugs, my heart (lungs) feels fine. If not, I have to use inhalers.

The clients however did express their regrets trying those substances and became hooked in addictions that cost them their future.

C2: Thinking back... (I) feel regret.

C4: Of course regret...Regret. Now (I am) already 22 years old, not going to college but admitted to the (rehabilitation) centre.

Discussion

The abuse of scheduled substances involving prescription and OTC medicines is well noticed globally. The ubiquity and high accessibility to the substances were reported by several studies as the main factors of scheduled substances abuse^{8,9,10}. Although studies on scheduled substances abuse had been done both globally and locally, the link between scheduled substance (prescription or OTC products) abuse and dangerous drugs use in the Malaysian setting needs further probing and discussion. This is deemed necessary to better address and reduce the number of individuals falling into dangerous drug use, which is still reported at an alarming level².

The interviews showed that *ketum* and cough medicines were the most popular options for scheduled substance abuse. The use of scheduled substances, akin to other social problems, did stem partly from peer pressure. Almost all clients pointed to their social circle as their starting point of involvement in the substance abuse. Several clients relied on their networking as an efficient medium in obtaining the substances for recreational use. The clients had also suggested that substances abuse is part of their social activities and therefore they were inevitably enticed into trying and were eventually hooked on scheduled substances abuse.

Ketum use in this group of client was believed to be influenced by the geographical location and socio-demography of the interviewees as *ketum* is a native tropical plant and is vastly available in the northern territories of Malaysia¹¹. Similar pattern of *ketum* popularity in the North Malaysia had been shown in another study, especially in the suburban areas¹². *Ketum* (*Mitragyna speciosa*) contains mitragynine and 7-hydromitragynine, both are alkaloids which are responsible in producing the opioid-like effects on its consumer¹³. Even though mitragynine has been listed as a regulated substance in 2003, *ketum* is still commonly used, sold and purchased among the community as it had been consumed freely for generations without any stigma¹⁴. This was confirmed by several clients in this study, as they mentioned that *ketum* is openly consumed in their communities with minimal concern on its psychoactive effects and long-term repercussions.

Traditionally, *ketum* had been used for multiple purposes such as treatment of minor ailments like cough and diarrhoea, but was more popularly consumed for energy boost and pain management^{15,16}. This had made *ketum* consumption more prevalent among the suburban communities in northern Malaysia, where most of our subjects were from, due to their economic orientations that focus on laborious tasks and their close proximity to the natural habitat of the plant. As stated by several clients, their source of *ketum* was mostly from the commoners in their local community who plant *ketum* by themselves. In order to increase its palatability and improve the 'high' obtained from the substance, *ketum* is often concocted with carbonated drinks and cough medicines, respectively. The youths of suburban districts from low to moderate income family who completed below average education level are among those most vulnerable to the abundance and affordability of *ketum* drinks in the fairly unregulated market. According to our group of participants, *ketum* is the best option for energy boost in order to commit to their low-paying and strenuous job, which is parallel to

previous findings¹⁷. Often, this leads to substance dependence and even tolerance, which may escalate to the abuse of substances with higher potency.

Cough medicines, on the other hand, had always been notorious for their misuse and recreational use to achieve euphoria especially among the youth^{18,19}. Several studies on cough medicines abuse and diversion, especially those containing Dextromethorphan (Nospan) and Diphenhydramine (Benadryl, Uphadyl, Dynadryl), had been published at the international level. In the United States, cough medicines are the main option for substance abuse among the adolescents²⁰. Our study found most of the clients admitted intentional misuse of cough preparations. The relatively easy access and affordability of cough preparations were the two main factors which contributed to its rampant abuse. Previously, similar finding had also attributed the widespread misuse of cough medicines to the product legality and its cheap price tag⁹.

In Malaysia, the active ingredients of frequently abused cough medicines are categorised as Poison under the Poison Act 1952, which means that these are controlled items and can only be sold by licensed pharmacists and medical practitioners. Despite this, current regulation does not seem to impede the supply of cough medicines to be used for recreational purposes. Statements obtained from several clients in this study suggested that getting constant supply is not difficult, as they admitted that some clinics and pharmacies supply cough medicines in large quantities and without thorough medical assessment prior to the supply. This suggested that unless the healthcare malpractice and lack of social responsibility observed among this fragment of healthcare practitioners are rectified, issues of recreational use of scheduled substances such as cough medicines will remain unsolved. Clients also admitted to 'pharmacy- or clinic-shopping', which means acquiring stocks from multiple premises in order to ensure continuous supply of cough medicines. This inappropriate supply of cough medicines could be addressed through a two-pronged approach: a more regular monitoring and enforcement activities and incorporating an automated supply tracking system and registry that is able to monitor distribution and supply of these scheduled substances effectively.

In terms of substance dependence, scheduled substances were described to be both habit-forming and addictive, although the dependency of cough medicines was regarded to be milder. All clients admitted that *ketum* elicited addiction and triggered withdrawal symptoms including restlessness, muscle pain and sweating. Some complained of shivering when the effect of *ketum* weaned off. The noxious experience and degree of severity of withdrawal symptoms varied from one client to another. However, every client who had experienced *ketum* abuse in our group admitted that stopping *ketum* consumption was not an easy task and for some clients, the amount and frequency of *ketum* consumption had continued to gradually increase prior to rehabilitation. Previous studies had shown withdrawal effects and tolerance from long term use of *ketum*, aside from its negative effects on the cognitive behaviour of the users^{21,22}. From another perspective, the ability of *ketum* alkaloid to mimic opioid activity by stimulating opioid receptors proposed its therapeutic potential to be used as proper analgesics and as an opioid replacement therapy^{14,23}. However, this needs to be cautiously considered as the therapeutic potential comes together with the possibility of abuse and its exact pharmacological activity in long-term *ketum* abusers still requires further assessment^{17,24}.

Cough medicines are portrayed as possessing less addictive potential comparing to *ketum*. Nevertheless, several studies argued that even though cough medicines do not cause addiction pharmacologically, the ability to produce mental dissociation and euphoria is largely sought after by the abusers^{10,25}. Eventually, recurrent consumption of cough medicines to alter the mental states could cause substance dependence in the long run. This was found to be coherent with our findings as the clients related their recreational use of cough medicines with their need to feel 'dizzy', colloquial for induced euphoria. Prolonged use of cough medicines for this purpose exposed users to harms secondary to altered mental state such as accidents and substance overdose that may lead to fatality^{26,27}.

Almost half of the approached Cure & Care Clinic clients had experience or were involved in scheduled substances abuse prior to their use of dangerous drugs, which eventually led them to rehabilitation. Therefore, scheduled substances may play a significant part in the transition to dangerous drugs use. Our results revealed that the involvement in dangerous drugs was also related to the influence posed by the same social circle that embroiled them into scheduled substance abuse. The same group of friends opened the access to the supply of dangerous drugs, either by acting as a direct stockist or by sharing known illicit suppliers. The shift to dangerous drugs use could be a result of the curiosity to try 'stronger' substances, which was ultimately traced back to the social circle. On top of that, the similar sensation elicited by *ketum* and heroine may also contribute to the transition from scheduled substance abuse to dangerous drug use. As *ketum* and heroine can be used interchangeably to obtain the desired mental and physical state or to fulfil the cravings due to substance dependence, this provided options for the abusers when they face stock shortage of either substance.

The main limitation of this study was that this was a single-centre study that may not be able to represent the general population in Malaysia. Also, we were unable to ensure that absolute truth was obtained from the verbal conversations during the interviews as the clients might be inclined to give answers which they perceive as favourable or more socially acceptable. During the interviews, four interviewers held distinct, non-scripted interviews simultaneously guided by an interview guide which acted as the framework for the interviews. Nevertheless, the results obtained from the interviews were dependent on the individual styles and skills of the interviewers in handling the conversation and on the responsiveness of the clients. As this study was qualitative and explorative in nature, it is recommended that further quantitative study at the national level is necessary to evaluate the impact of the scheduled substances abuse towards the dangerous drugs use.

Conclusion

The role of scheduled substances abuse in leading to dangerous drug use has not been previously discussed. The relatively easy access to scheduled substances, along with its inexpensive price tag made it an easy target for recreational use and abuse especially among the youths. This study found that the addictive potential of scheduled substances, although often deemed to be less hazardous, may eventually result in the abuse of dangerous drugs. The qualitative and explorative nature of this study warrants further detailed investigations on the impact of scheduled substances abuse towards drug addiction catastrophe to gain a better perspective on the issue.

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Conflict of Interest Statement

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