Original Article

Drug Use Situation in Secondary School Students, Kong District, Nakhon Ratchasima Province, Thailand

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Objective: To examine the situation of drug use, and association between drug use and drug literacy in secondary school students.

Materials and Methods: A census of 2,404 students from 3,468 secondary school students was conducted during their second semester of the academic year 2015. There were 1,120 males, 1,284 females, 1,536 students in grades 7 and 8 (junior secondary school) and 868 students in grades 10 and 11 (senior secondary school). The census was done in the 23 primary and secondary educational opportunity expansion schools. A self-administrative questionnaire was used. Data were analyzed using descriptive statistics, odds ratio [OR] with 95% confidence interval [CI], Chi-square, and multiple logistic regression.

Results: The response rate was 89.4%, in which females (53.4%) and junior secondary school students (65.7%) were predominant. Fifty-four-point-six-percent of the participating students had used any type of drug, including tobacco and alcohol, 59.5% (OR 0.69, 95% CI 0.58 to 0.82, p<0.001) were males, 61.9% were aged 15 to 19 years (OR 1.59, 95% CI 1.33 to 1.90, p<0.001), and 62.1% (OR 1.60, 95% CI 1.33 to 1.92, p<0.001) were senior secondary school students. The types of drug use included alcohol (48.6%), tobacco (27.0%), cannabis (6.2%), inhalants (6.2%), and methamphetamine and other amphetamine-type stimulants [ATS] (3.5%). The lifetime prevalence rate of drug users was 54.6% and in the past three months, the prevalence rate of drug users was 24.0%. Most students who had never used the drugs had drug literacy for 85.1% (OR 0.48, 95% CI 0.39 to 0.60, p<0.001). The literacy was associated with tobacco (AOR 0.32, 95% CI 0.19 to 0.54, p<0.001) and cannabis (AOR 0.24, 95% CI 0.16 to 0.38, p<0.001). During the previous three months, the proportion of drug use had declined, but the use was in a high-risk level. Drug literacy was significantly related to the risk level in tobacco and alcohol use (p<0.01). The factors associated with drug use were age, gender, educational level, and drug literacy (p<0.01).

Conclusion: There is evidence of drug use in the secondary school students and the use is in a high-risk level for all types of drug. The types of drug use varied in different age groups. The students who have never used the drug have drug literacy higher than those who used the drugs. Therefore, knowledge about drug use should be given appropriately to the students' age, gender, and educational level.

Keywords: Secondary school students, Drug use, Drug literacy, Thailand

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Drug use is a social problem, a threat to the national security, and affects the peace of the domestic and worldwide population. The United Nations office on Drug and Crime [UNODC] estimates in 2016, one twentieth of the population aged 16 to 64 or 246 million people used drugs. Approximately 29 million people suffer and are not able to perform routine work because of drug use[(1)]. Furthermore, the population of this age group, about 12 million people use injection drugs whilst 14% of which live their lives with HIV. The most common type of drug use is cannabis, followed by amphetamine-type stimulants [ATS], opium, and cocaine-related drug. Cannabis is used widely in America and Africa whilst ATS is used mostly in the Southeast Asia and North America[(1)].

In Thailand, the drug use is rising. The number of seizures has increased from 57,920 in 2007 to 162,462 in 2015. The most common types of drug used are methamphetamine, followed by cannabis, ICE, heroin, and cocaine[(2)], in which, the use is most prevalent in the age group of 20 to 24 years (21.8%), followed by the age group of 15 to 19 years (20.4%). The highest prevalence is in the northeast part of Thailand (31.8%)[(3)]. The Ramjit Institute and the Office of the Narcotics Control Board have examined 45,894 people aged between 11 and 15 years in 2011 and found that most of them are in the secondary school (72.2%), females (25.4%), and the most common types of drug used

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were alcohol (25.4%), tobacco (14.6%), and cannabis (4.0%), respectively[4].

Based on a household survey in the northeast Thailand, 1,073,307 people aged between 12 and 65 years or about 6.4% of the population in the same age group have used any type of drugs. The mean age when first used was between 20 and 25 years and the most common types of drug used were cannabis, methamphetamine, kratom, and therapeutic drugs. The prevalence of the single-drug users in the northeast Thailand was 65 per 1,000 population and the prevalence of multi-drug users were 17 per 1,000 population[5]. Based on the review of drug situation in Thailand, it is found that drug users continued to use for a long period of time.

Although there is evidence of drug use, these data were collected based on random sampling from some groups of population. There are both advantaged and disadvantages for this method of data collection. The advantages are low cost, easy to collect the data, and obtain the data from the group of population as desired[6] while the disadvantages are errors from the sampling methods, and the sampling groups may not represent the whole population[7]. This is different from a population survey (census) that collect data from the entire population in each and every unit of research population without random sampling. Therefore, with that method, there would not have sampling errors. The reliability is further reduced when the sample size is small. However, the present study was conducted in a district of a big province of the northeast Thailand that had 23 medium size primary and secondary educational opportunity expansion schools. Therefore, these areas are appropriate to examine the situation of the drug use to develop surveillance system to decrease the demand of drug use in this group of students.

Objective

1. To examine the situation of drug use in secondary school students.
2. To examine the association between drug use and drug literacy in secondary school students.

Materials and Methods

This descriptive study used data from a cross-sectional survey.

Areas of study

Kong district, Nakhon Ratchasima province was selected as a typical district with the population of 81,411. There were 63 schools located throughout the district, 61 schools were under the supervision of the department of basic education, while two schools were under department of elementary education.

Population and samples

Of the 63 schools throughout the district in 2015 to 2016 educational year, 23 schools gave the permission to conduct this study. There were 3,468 secondary students attending the 23 schools in Kong district. Of these, students in grade 7, 8, 10, and 11 were eligible since these students will be followed up in 2017. Of these, 2,404 students were accessible. Only 2,148 students (89.4%) voluntarily participated (age ranging from 12 to 19 years old (mean age 14 with SD 1.52), and 46.6% (1,001) were males).

Outcome of interest

The outcome of the present study was drug use prevalence. The two prevalence periods were lifetime prevalence (experience taking drug at least one time in their lives), and past three months prevalence or current use (taking drug at least one time in the past three months from the survey date).

Tools

The self-administered questionnaire was developed by 12 experts. The questionnaire comprised five parts, 1) demographic data, 2) network scale-up, 3) substance literacy scale, 4) severity of drug use (ASSIST), and 5) addiction stigma measurements.

For size estimation of drug users, Network Scale-Up was used. The network scale-up method is a social network method for estimating the size of hard-to-reach populations documented elsewhere[8]. In the present study, thirty individuals were invited for tool construction procedure. Each individual was asked to write 50 names of the acquaintance who were recently contacted, type of social relationship, and status/characteristics of each name. For summation method, a sociometry procedure was used to list the types of social relationship from 1,500 names. Five experts were asked to consider for indexes of item-objective congruence independently. Only the types, of which the index scores were 0.8 or above, would be selected. As a result, 19 types of social relationships such as parent, relatives, friends from school etc. were identified. The ASSIST was developed for the WHO by an international group of substance abuse researchers[9]. Test-retest reliability of the instrument was 0.90.

Substance literacy scales was developed specifically for Thai population in 2015[10]. The scale

content validity index was 0.86, concurrent validity was 0.667. The Thai Addiction Stigma Scale was developed to gauge stigma level regarding public response to addiction for the Thai population with alpha reliability of 0.77 and content validity index of 0.97[11].

Data gathering

The researchers collected data from the 23 schools in the second semester of the academic year 2015. The participating students read the questions and filled out the questionnaire by themselves. An average of 20 to 30 minutes was spent with each participant.

Data analysis

These data were double-entered into a computer and validated. The data set was analyzed by frequency, percentage, mean, standard deviation, odds ratio [OR] with 95% confidence interval [CI], Chi-square, and multiple logistic regression.

Ethics statement

This research project was approved by the Human Research Ethical Committee Khon Kaen University with an approval number HE581031, and based on the principles of the Declaration of Helsinki and ICH-GCP standards. Written consent was received from the participants and from the parents or guardians of minors.

Results

Two thousand one hundred forty-eight students returned the completed questionnaires. The respondents were females predominately, and mean age was 14 years (SD 1.52, median 14.0, IQR 2, range 12 to 19 years). Most students lived outside municipal areas (75.4%) and studied in junior secondary schools. Fifty-four-point-six percent of the participating students have used any type of drugs including alcohol and tobacco, 59.5% of which were males. The males had higher risk of using drugs than females (OR 0.69, 95% CI 0.58 to 0.82, $p<0.001$). The participants' age group of 15 to 19 years had higher risk of using drugs than those aged 12 to 14 years (OR 1.59, 95% CI 1.33 to 1.90, $p<0.001$). The participants in senior secondary school (62.1%) had 1.6 times higher risk of drug use than those juniors (OR 1.60, 95% CI 1.33 to 1.92, $p<0.001$). The most three common types of drug use were alcohol (48.6%), tobacco (27.1%), and cannabis (6.3%). For multi-drug users, including tobacco and alcohol, males were predominant (59.5%) and 26.4% were those in junior secondary schools. In addition, the results found that the older the age, the higher the use of multi-drugs.

Table 1 shows the lifetime prevalence and the past three months prevalence.

Table 2 demonstrates risk levels of each type of drug use during the past three months. The results found that the risk of drug use was highest for tobacco, alcohol, and ATS, respectively.

The majority of students who had never used any drug had a drug literacy of 85.1%, which decrease the risk of drug use (OR 0.48, 95% CI 0.39 to 0.60, $p<0.001$). Comparisons between those who did and did not use drugs with drug literacy, the results found that the top three highest drug literacy was found in non-smokers 85.5% (OR 0.26, 95% CI 0.21 to 0.32, $p<0.001$), non-alcohol-drinkers 83.2% (OR 0.58, 95% CI 0.47 to 0.71, $p<0.001$), and non-cannabis-users 81.5% (OR 0.13, 95% CI 0.09 to 0.19, $p<0.001$) (Table 3).

When addictive factors were used to analyze the relationship with drug use behavior by multiple logistic regression, it was found that, when controlling the effect of agitation factor, only cigarettes and marijuana

Table 1. The lifetime prevalence and the past 3 months prevalence

Type of drugs	Prevalence (%)	
	The lifetime prevalence	The past 3 months prevalence
Tobacco	16.81	9.75
Alcohol	30.10	19.00
Cannabis	3.89	2.31
ATS	2.19	1.24
Inhalants	3.60	1.93
Sedative or sleeping pills	1.53	1.04
Hallucinogens	1.41	0.69
Opium	2.85	1.50

ATS = amphetamine-type stimulants

Table 2. Risk level of drug use (ASSIST) during the past three months

Type of drugs	Risk level (%)		
	Low	Medium	High
Tobacco (n = 338)	5.6	77.2	17.2
Alcohol (n = 659)	13.4	81.9	4.7
Cannabis (n = 80)	13.8	82.4	3.8
ATS (n = 43)	25.6	69.8	4.7
Inhalants (n = 67)	37.3	61.2	1.5
Sedative or sleeping pills (n = 36)	22.2	75.0	2.8
Hallucinogens (n = 24)	37.5	58.3	4.2
Opium (n = 52)	36.5	61.5	2.0

ATS = amphetamine-type stimulants

Table 3. Drug literacy and single- or multi-drug use in the students at Kong district, Nakhon Ratchasima province (n = 2,148)

Drug literacy	Drug use (%)		OR (95% CI)	*p*-value
	Yes	No		
Tobacco			0.26 (0.21 to 0.32)	0.000
Had drug literacy	60.4	85.5		
Did not have drug literacy	39.6	14.5		
Alcohol			0.58 (0.47 to 0.71)	0.000
Had drug literacy	73.9	83.2		
Did not have drug literacy	26.1	16.8		
Cannabis			0.13 (0.09 to 0.19)	0.000
Had drug literacy	37.0	81.5		
Did not have drug literacy	63.0	18.5		
ATS			0.36 (0.22 to 0.57)	0.000
Had drug literacy	57.9	79.4		
Did not have drug literacy	42.1	20.6		
Inhalants			0.38 (0.26 to 0.55)	0.000
Had drug literacy	60.0	79.8		
Did not have drug literacy	40.0	20.2		
Sedative or sleeping pills			0.34 (0.20 to 0.59)	0.000
Had drug literacy	56.6	79.2		
Did not have drug literacy	43.4	20.8		
Hallucinogens			0.21 (0.12 to 0.37)	0.000
Had drug literacy	44.9	79.5		
Did not have drug literacy	55.1	20.5		
Opium			0.48 (0.31 to 0.73)	0.000
Had drug literacy	64.6	79.4		
Did not have drug literacy	35.4	20.6		
Used single type of drug			0.48 (0.39 to 0.60)	0.000
Had drug literacy	73.3	85.1		
Did not have drug literacy	26.7	14.9		
Used multiple type of drug			0.30 (0.24 to 0.38)	0.000
Had drug literacy	62.5	84.7		
Did not have drug literacy	37.5	15.3		

ATS = amphetamine-type stimulants; OR = odds ratio; CI = confidence interval

related to drug addiction knowledge were as follows, smoking (AOR 0.32, 95% CI 0.19 to 0.54, $p<0.001$), and marijuana (AOR 0.24, 95% CI 0.16 to 0.38, $p<0.001$) (Table 4).

Discussion

The present study examined the drug use situation in the secondary school students of Kong district, Nakhon Ratchasima Province. It shows complete characteristics of the population and is more reliable than using the sampling methods[7]. The sampling methods need to rely on the representative of the general population, therefore, the errors can occur since the beginning of the sampling process, i.e., sampling errors[7], and other processes comprising the estimation to explaining the population, hypothesis testing, and bias reduction in which these errors depend on the size of the population. Additionally, the reliability

Table 4. The relationship with drug use behavior by multiple logistic regression

Drug literacy	COR	AOR	95% CI for AOR		*p*-value
			Lower	Upper	
Tobacco	0.26	0.32	0.19	0.54	0.000
Alcohol	0.58	1.26	0.73	2.16	0.405
Cannabis	0.13	0.24	0.16	0.38	0.000
ATS	0.36	1.51	0.80	2.85	0.203
Inhalants	0.38	0.92	0.57	1.50	0.739
Sedative or sleeping pills	0.34	0.80	0.38	1.72	0.579
Hallucinogens	0.21	0.67	0.31	1.43	0.297
Opium	0.48	0.95	0.54	1.70	0.874
Used single type of drug	0.48	0.93	0.54	1.60	0.793
Used multiple type of drug	0.30	1.02	0.57	1.82	0.941

ATS = amphetamine-type stimulants; COR = crude odds ratio; AOR = adjusted odds ratio; CI = confidence interval

may decrease if there is a small sample size. On the other hand, analyzing whole population remove this problem[7]. In addition, the accuracy of outcomes would be lesser in the sampling methods depending on the extent to which errors in data collection or in the study sample[12]. However, population survey (census) may have limitations of longer time allocation and higher cost whilst the sampling method uses less time and budget.

The present study showed the current situation of drug use spreading in the secondary school students[13], in which the prevalence of drug use, including tobacco and alcohol, was 54.6%. The proportion of drug use between males and females were similar, i.e., 50.9% and 49.2%, respectively. The highest prevalence of drug use was in the age group of 15 to 19 years. The present study also found that 45.4% of the students age group of 12 years had used any type of drug. This emphasizes the fact that drug use has been spreading into the educational institutions for an extended period of time[14]. In addition, this shows that access to drug is easy and approachable, indicating the views of drug use are normal and can be done in any place and at any time without feeling guilty and shame or perceiving illegal or having to hide[15]. Therefore, it is making the spread of drug use easily and quick[4,5]. For multi-drug use, including alcohol and tobacco, the older age had used the multi-drugs more than the younger age group[16,17].

The most common types of drug use were alcohol, tobacco, cannabis, inhalants, methamphetamine, and ATS, respectively[3-5,18]. The reasons of high prevalence in the use of alcohol and tobacco in this group of population may be explained by that these two drugs

are legal in Thailand. Although Thailand has laws to restrict those below the age of 18 years from legally purchasing tobacco products[19], enforcement is still ineffective, particularly in the shops in villages where purchasing can be done without time or age limit[20,21]. In addition, Thais add values of drinking alcohol as a part of tradition and culture, which brings new drinkers and drinking values, especially into the children and youth[22]. Moreover, there is evidence that using alcohol and tobacco with other types of drugs is growing[23,24].

The present study found the factors that associated significantly with drug use included gender, age, educational level, and drug literacy ($p<0.001$). Although the proportion of drug use was not different between males and females, there was a higher risk of drug use in males than did in the female students. The secondary school students started using drugs since the early age and used more when getting older[17,23-25].

For those who used to smoke, one fifth smoked during the past three months whilst this happened to about half of those who used to drink and drank during the past three months. On the other hand, for cannabis users, only 4.3% used cannabis during the past three months. This showed that the use of cannabis does not build an easy addiction[14,26]. One possible explanation was that Thais used cannabis as ingredient for cooking, especially by the teenagers in northeast Thailand[27]. In addition, the students in the present study who have used any type of drug during their lifetime, still used drugs during the past three months, and 1.5% to 4.7% of them used the drugs in the high-risk level.

For drug literacy and drug use, the present study showed that the students who did not use drug had higher drug literacy than those who did. This could apply to all type of drug use including, multi-drug use. This can be interpreted like health literacy in which those who have more health literacy tend to have less health problems, including the ability to prevent diseases or care for themselves more than those who have less health literacy. In addition, health literacy is one factor to prevent and reduce the health disparity. Therefore, drug literacy can apply the concept of health literacy in developing individual immunity against drug use[27,28]. In Thailand, the Ministry of Public Health has adopted the principle of health literacy in the process of behavioral changes and set as the indicators of the health operations[29]. This indicates that accessibility and understanding of the data on drug use, harms of each type of drug, multi-drug use, and frequency of drug use would help in analyses, assessment, and giving guidance on one self-management as like health literacy.

Conclusion

There is evidence of drug use, including tobacco and alcohol, in the secondary school students at Kong district, Nakhon Ratchasima Province. The junior and those younger age use drugs in high-proportions. Drug use has been spreading into the educational institutions for a long period of time. The most common types of drug use in the secondary school students are alcohol, tobacco, cannabis, methamphetamine, and ATS, respectively. For those students who have used drugs once during their life time, the drug use during the past three months has declined, but the level of use is in a high-risk for all types of drug. The students who have drug literacy have less chances of single- (including alcohol and tobacco) or multi-drug use than those without drug literacy. Therefore, there is a need to have a surveillance system to reduce the numbers of drug user in the students body and to promote students in obtaining drug literacy appropriately for their age, gender, and educational level.

What is already known on this topic?

The most common types of drug use in the children and youth were alcohol, tobacco and cannabis, respectively, but the prevalence of substance use among secondary school was not reported. Factor associated with substance use is unknown.

What this study adds?

The most common types of drug use were alcohol, tobacco, cannabis, inhalants, methamphetamine, and ATS, respectively. The factors associated significantly with drug use includes gender, age, educational level, and drug literacy.

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Potential conflicts of interest

The authors declare no conflict of interest.

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