

Utilization of dating apps by men who have sex with men for persuading other men toward substance use

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Background: Dating apps play a major role in connecting men who are interested in meeting other men for sex. Besides finding a partner, these tools are also exploited for other activities such as encouraging people to get involved in the habit of illicit drug consumption (substance use).

Methods: This study evaluated the overall usage of dating apps among Thai men who have sex with men (MSMs), with an emphasis on abusing these apps to convey messages encouraging substance use. A well-structured Survey Monkey questionnaire posted on specialized websites and social sites used by MSMs was used to collect the data. Data were analyzed using regression and correlation analysis in order to establish the relationship between variables.

Results: A substantial proportion (73%) of the Thai MSM community is using dating apps to find their partners as well as for inviting others into illicit drug practice. Unfortunately, persuasion through dating significantly influenced people toward accepting a substance use invitation, with a 77% invitation success rate. Substance use was also linked with unprotected sex, potentially enhancing the transmission of sexually transmitted infections.

Conclusion: Dating apps significantly increased motivational substance use through messaging from their counterparts. One of the major concerns revealed in this study is that Thai MSMs who reported being involved in substance use also reported avoiding use of condoms during intercourse.

Keywords: homosexual, mobile apps, social media, substance, Thailand

Background

Substance use or illicit drugs usage is a major problem in Thailand and other parts of the world.¹ The government is highly cognizant of this issue and besides classifying it as a “national crisis” urged help from all sectors of society to combat this problem which tarnishes the overall respect of the country.² According to a recent policy paper, the Thai government’s initial interventions to stop illicit drug usage involving voluntary compassionate treatments, as well as engaging law enforcement agencies enforced transfer of addicts for compulsory treatment centers have been ineffective.³ Unfortunately, the stigma attached with being a drug user makes people exercise substance abuse at remote places.

One major recent issue surfacing globally is the utilization of information communication technology (ICT) in illicit drug usage practices through totally new modus operandi.⁴ Data from the International Security Operations Command (ISOC), a unit of Thai military devoted to national security issues, revealed that in the year 2015, the network of illicit drug traffickers and users both have been using latest ICT strategies

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for expanding their linkages, thus resulting in a dramatic increase in the number of people using banned drugs. This particular scenario is due to the usage of digital devices and Internet among Thai people. The Electronic Transactions Development Agency of Thailand reported that on average Internet usage among Thai adults is 50.4 h per week (7.2 h a day) and mobile phones are mainly used (77.1%) for Internet surfing and other activities.⁵

Among several other groups, men who have sex with men (MSMs) are a major illicit drug user group. Homosexuals use a number of technology gadgets like hook-up and meet-up apps that help them to find a partner quickly.⁶ As occurs in other homosexual communities worldwide, the Thai homosexual community has been using various dating apps for finding their partner.⁷ As the dating apps act as a mere communication channel, the researcher in this study hypothesized that *Thai MSM community is utilizing dating apps for spreading substance use*. This hypothesis is based on sporadic information and reports that homosexuals use dating apps besides their intended purpose of convincing others for substance abuse. A series of coded messages and symbols in MSM individuals' profiles reflect an invitation for substance use also. Among these, the most common in the Thai homosexual community were symbols and messages like "ice and popper" and "cold, high, skates, ice cubes, and dew". Researchers involved in this study noticed a considerable amount of MSM users placing these messages and/or symbols in their profiles in the dating apps. Furthermore, anecdotal information exists, that many substance users attempt to entice non-users for illicit drug usage claiming that the substance abuse increases sexual pleasure and vitality.

Based on the preceding information, this study was aimed at evaluating the behaviors of Thai MSM dating apps users toward illicit drug usage. A questionnaire was designed which included a number of important questions:

1. Proportion of MSMs who have been convinced via dating apps to engage in substance trials and what is the number of MSMs who engage in substance trials after being convinced via dating apps?
2. Is there any relationship between the attitudes toward persuasions to engage in substance trials and the behaviors of substance trials?
3. Is there a relationship between the characteristics of MSMs who use dating apps and the behaviors of substance trials?
4. Is there a relationship between the satisfaction toward substance trials and the frequency of substance use?
5. Is there a relationship between the use of substances during sexual intercourse and the use of condoms along with examinations for HIV?

Methods

The research methodology used in this study involves a survey of Thai MSMs using dating apps. A non-probability sampling technique with convenience sampling was employed for subject recruitment. An online questionnaire developed through Survey Monkey – an online questionnaire tool (www.surveymonkey.com) – was distributed among specific online MSM communities and networks by posting the online questionnaire link in eight websites mainly used by MSM community and five social media channels with a tag “*Chai-Ruk-Chai*” (meaning “men who love men”). Several websites and social media sites were utilized in this study.

Online questionnaires were distributed through the websites from February 9 to March 10, 2016, allowing a period of 30 days for data collection. The main reason for selecting these dates was that Valentine's Day falls on February 14, and is a time when utilization of dating apps is supposed to be high.⁸ The number of participants from different collecting sites was monitored through Bitly (bit.ly), to ensure that questionnaires were distributed equally.⁹

The Survey Monkey questionnaire utilized in this study comprised 21 questions. Among these questions, three had eight sub-questions each for obtaining overall qualifications and attitude of the study participants. The remaining 18 questions had multiple options which the participants can answer based on a 5-point Likert scale.¹⁰ For the sake of simplicity for analyzing the data, the questionnaire was divided into the several sections such as demographic, app use, sexual behavior, drug use, and feeling like trying drugs. Descriptive statistics, Pearson's product moment correlation coefficients, and regression analysis were performed to quantify the relationship between the variables in this study.

All the participants who participated in the survey were informed that their involvement was voluntary. They were assured that their identity would be kept confidential and that the survey would be completely anonymous, thus did not require any personally identifying information.

Results

A total of 350 respondents submitted their responses to the study questionnaire. Among these 200 were from the eight carefully selected websites and 150 were from social media sites. A demographic evaluation revealed that three of four respondents were aged from 18 to 35 years. The demographic

findings showed that 61.7% of the participants claimed to have a Bachelor's degree as their qualification.

It was intriguing to note that 73.74% of the respondents' gave affirmative answers for the utilization of dating apps in the past 6 months. Furthermore, the five most common dating apps used by this group and their usage frequency were Hornet (48%), Jack'd (43%), Grindr (34.4%), Tinder (18.7%), and PlanetRomeo (13.7%). Uniformity over the time span in the usage of dating apps was revealed with the usage frequency once per week to every day. Regarding utilization of dating apps for meeting with other dating app users, results revealed that the majority of users (80.3%) meet up with one dating app user per week, whilst some users (13.3%) meet with one to two dating app users per week.

Every three of four respondents translating to 77.7% of the participants in this study reported that they had never seen words referring to substance, and almost half of them (45.4%) reported that they have seen those words very often. This study also explored the nature of messaging to identify which illicit drug was used the most frequently among MSMs. The study showed that methamphetamine abuse is rampant among the MSM community. The data revealed that majority of the messages were relevant to methamphetamine – a transparent color shaped drug similar to ice cubes. The nature of the persuasive messages for this drug abuse were coded with words such as high, cold, ice cubes, dew, ice, pull, and spray. For instance, the coding used to refer to the “Popper drug”, a substance commonly used by the MSM community is pop and smell.

More than half of the dating app users translating to ~54.6% have been persuaded to engage in substance trials. Nearly one-third of these users (31.3%), which is approximately one of 10 of dating app users, have engaged in substance use subsequent to receiving persuasions via dating apps (13.3%). Presently, more than half of the respondents who have been engaged in substance use are still using substances regularly, whereas only 45.7% have stopped using substances. Approximately one of four (25.7%) of substance users use substances regularly at least once a week. Besides, approximately four of five respondents who have been engaged in substance use or trials (82.9%) reported that they use substances by sharing substances with people whom they have been acquainted with via dating apps or when purchasing substances with dating app users. Consequently, this information reflects that dating apps are one of the highly popular distribution channels among substance users for spreading substance use.

Regarding behaviors of using substances during sexual intercourses, merely one of three substance users engage in

sexual intercourses without using substances simultaneously (34.3%). Furthermore, approximately one of three respondents who use substances during their sexual intercourse did not use condoms regularly (31.4%); therefore, this behavior accelerates the risk of spreading and being infected by sexually transmitted diseases, especially infection of HIV. However, considering the statistics of HIV examinations within the sample, as much as three of four substance users (77.1%) have not undergone any HIV examination throughout the past 6 months.

In order to evaluate the respondent's attitudes toward substance use trials, a correlation analysis was performed with the aid of two major questions.

1. I do not see any bad consequences of substance trials.
2. Substance abuse is likely to create happiness with three attitude parameters: 1) feel satisfaction upon trial invitation, 2) desire to engage in persuasion-induced substance use, and 3) decisions to engage in persuasion-induced substance trials.

A majority of the respondents desired to engage in persuasion-induced substance use, believing it is associated with pleasure and happiness ($r=0.853$). Overall, a strong correlation value of $r=0.7$ showed that satisfaction, desire to get persuaded, and the decision to engage in substance abuse following persuasion are all associated with the MSM community belief in “I do not see any bad consequences of substance trials” and “substance abuse is likely to create happiness with three attitude parameters”. As evidenced in Table 1, persuasion is a major factor involved in supporting the decision by the MSMs to get involved in illicit drug usage.

In the next step, correlations between attitudes toward substance use trials, along with attitudes toward persuasions to engage in substance use, with the behaviors of engaging in persuasion-induced substance use were examined. The findings reveal that attitudes toward substance use trials along with attitudes toward persuasions to engage in substance use are positively correlated with the behaviors of engaging in persuasion-induced substance use (Table 2). This suggests that people who either have positive attitudes toward substance trials or have positive attitudes toward persuasions to engage in substance use have the likelihood to engage behaviors of persuasion-induced substance use.

A stepwise multiple regression analysis was performed to further evaluate the correlation coefficients attitudes toward substance use trials and attitudes with persuasions to engage in substance abuse by specifying the persuasion-induced behaviors of engaging in substance use as the dependent variable. Through these analyses, it was revealed that

decisions to engage in persuasion-induced substance abuse trials and satisfaction when receiving substance abuse trial invitations are two most significant variables in predicting the behaviors of substance abuse, respectively. Therefore, this scenario indicates that when dating app users receive substance abuse trial invitations, they feel satisfied with these persuasive messages and more likely to get engaged in substance use.

The findings from the Tables 3 can be described using the following multiple regression formulae expressed in the form of two models to predict the effectiveness of persuasive messages in bringing people toward substance use:

$$\begin{aligned} \text{Model 1} = Y &= 2.181 - 0.249(X_1) \\ R^2 &= 0.576 \\ Y_2 &= -0.759(X_1) \\ R^2_{\text{adjusted}} &= 0.572 \end{aligned}$$

Table 1 Relationship between attitudes toward substance abuse trials and harm perception

Correlation	Feel satisfied upon trial invitations	Desire to engage in persuasion-induced substance use	Decisions to engage in persuasion-induced substance trials
I do not see any bad consequences of substance abuse	0.747**	0.810**	0.741**
Substance abuse is likely to create happiness	0.734**	0.853**	0.791**

Note: **Pearson's correlation is significant at the 0.01 level (two-tailed).

Table 2 Relationship between attitudes toward substance trials, along with attitudes toward persuasions to engage in substance use, with behaviors of engaging in persuasion-induced substance use

Correlation	Behaviors of persuasion-induced substance use
Attitudes toward substance abuse trials	
I do not see any bad consequences of substance trials	0.648**
Substance use is likely to create happiness	0.664**
Attitudes toward persuasions to engage in substance use	
Satisfaction when receiving substance trial invitations	0.668**
Desire to engage in persuasion-induced substance use	0.680**
Decisions to engage in persuasion-induced substance trials	0.754**

Note: **Pearson's correlation is significant at the 0.01 level (two-tailed).

$$\begin{aligned} \text{Model 2} = Y &= 2.230 - 0.192(X_1) - 0.077(X_2) \\ R^2 &= 0.598 \\ Y_2 &= -0.585(X_1) - 0.229(X_2) \\ R^2_{\text{adjusted}} &= 0.591 \end{aligned}$$

Given that Y = Behaviors of persuasion-induced substance use

X₁ = Decisions to engage in persuasion-induced substance trials

X₂ = Satisfaction when receiving substance trial invitations

These models predict the behaviors of substance use according to the persuasive messages at ~60% (0.572–0.591).

Based on the information collected through questionnaires, the correlations between satisfaction toward substance use, along with the desire to use substances in the future, as well as the frequency of substance use were also examined (Table 4). The analyses revealed that satisfaction toward substance use and the desire to continue in the future are positively correlated with the frequency of substance use. This indicates that people who are subjected to substance use either have high satisfaction toward substance use or have high desire, which would ultimately result in higher frequency of substance use.

Data collected relevant to various demographic factors revealed that age and monthly income are significantly correlated with the behavioral aspect of persuasion-induced substance use followed by education and gender among Thai MSMs (Table 5). These findings will help policy makers in Thailand to identify people who need relatively better attention in overcoming drug use.

Table 3 Correlation coefficients in the stepwise multiple regression

Model	Variables	Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	Constant	2.181	0.049	
	I decided to engage in persuasion-induced substance trials	-0.249	0.020	-0.759
2	Constant	2.230	0.052	
	I decided to engage in persuasion-induced substance trials	-0.192	0.031	-0.585
	I feel satisfied when I receive substance trial invitations	-0.077	0.032	-0.229
Model	R	R ²	Adjusted R ²	SE of the estimate
1	0.759	0.576	0.572	0.30279
2	0.774	0.598	0.591	0.29614

Abbreviation: SE, standard error.

Table 4 The relationship between satisfaction toward substance abuse, along with the desire to use substances in the future, and frequency of substance abuse

Factors	Frequency of substance use
Satisfaction toward substance use	0.654**
Desire to use substances in the future	0.731**
Likelihood of continuing substance use in the future	0.839**

Notes: **Pearson's correlation is significant at the 0.01 level (two-tailed). Satisfaction toward substance use and the desire to continue in the future are positively correlated with the frequency of substance use. This indicates that people subjected to substance use either realize high satisfaction toward substance use or have high desire, which would ultimately result in higher frequency of substance use.

Dating apps have greatly enhanced the connecting of men who are interested in meeting other men for sex without enough background about each other. This study also evaluated through the questionnaire how much MSMs connected through dating apps pay attention to safer sex, particularly using condoms during sexual intercourse. Data from this study revealed a negative correlation between the partners meeting through dating apps and condom usage (Table 6).

Discussion

Substance use relationship with high-risk sex has been extensively described in numerous studies.¹¹ This study reveals that the majority of MSM community individuals in Thailand use dating apps for engaging/inviting their sex partners. There is a variety of dating apps available in the market.¹² However, Thai MSMs mainly use Hornet (>50%), followed by Jack'd apps. The reason for preference toward these two apps compared with others is a user friendly interface and built in preferences that allow users to share messages and pictures only to the intended audience. A blog share showing weighted average ratings based on customer satisfaction data is worth mentioning and both the apps used by the Thai MSM community stand on top of the list suggesting ill intended use

Table 5 Correlation of demographic characteristics of respondents with behaviors of engaging in persuasion-induced substance abuse

Demographic characteristics	Behaviors of engaging in persuasion-induced substance use
Gender	0.125
Age	0.282**
Highest level of education	0.146
Monthly income	0.219*

Notes: *Pearson's correlation is significant at the 0.05 level (two-tailed). **Pearson's correlation is significant at the 0.01 level (two-tailed). Age and monthly income are significantly correlated with the behavioral aspect of persuasion-induced substance use followed by education and gender among Thai MSMs.

Abbreviation: MSM, men who have sex with men.

Table 6 Relationship between safe sex and awareness about sexually transmitted diseases such as human immunodeficiency virus type I infection and MSM behaviors

	Behaviors of condom use	Behaviors of engaging in HIV examinations
The respondents use substances during their sexual intercourses with their dating partners whom they have become acquainted with via dating apps	-0.441**	-0.076
Dating partners of the respondents whom they have become acquainted with via dating apps use substances during their sexual intercourses	-0.404*	-0.023

Notes: *Pearson's correlation is significant at the 0.05 level (two-tailed). **Pearson's correlation is significant at the 0.01 level (two-tailed). There is a negative correlation between the partners meeting through dating apps and condoms usage.

Abbreviation: MSM, men who have sex with men.

of these apps all across the globe,¹² a notion that still needs to be explored. Global data corroborate with the opinions of Pantip, a Thai consumer blog ("Ma-hai-kanaan-app-gay-gun-krub", meaning "Let's give ratings to Gay Apps") on the website pantip.com.

According to a recent study conducted in Thailand, it has been observed that "Gay dating applications (apps) serve the drive for meeting sex partners and are now used by over two million homosexuals around the world. The nature of these apps involves users engaging in conversation that allows for significant information disclosure and increased trust, allegedly leading to unprotected sex when they meet offline"⁷ Data emanating from this study strongly suggest that substance use among Thai men is being practiced in the context of sexual intercourse as three of four respondents are exposed to message relevant to substance use and ~50% of the intended homosexual community received continued invitation for substance use for "ice drug" and "popper drug" a coding system being practiced among the Thai MSM community. This risky sexual behavior associated with substance use is one of the major causes for rapidly spreading acquired immunodeficiency syndrome (AIDS) in the region. Studies in the past have already confirmed that unprotected sexual intercourse among MSMs mainly contributes toward AIDS.^{11,13} Furthermore, there is a perception among the MSM community that substance use enhances sexual pleasure feelings.^{14,15}

Utilization of dating apps all across the world including Thailand is a reality; however, exploitation of these tools in enticing other fellow members in substance use

is a major problem to be tackled. This study evaluated the holistic scenario of substance use invitation and associated response, a major behavioral aspect. Based on the evaluation of respondent answers, it is quite clear that “attitudes toward substance use” have positive relationships with “attitudes toward persuasions to engage in substance use”, and both of these attitudes have positive relationships with “behaviors of substance use”. There are a number of potential variables impacting the behavior of MSM toward substance use. This study performed a stepwise multiple regression to deduce the plausible correlation of substance abuse among MSMs. Findings from these analyses revealed that when a dating app user decides to engage in persuasion-induced substance trials concurrently with feelings of satisfaction through receiving persuasive messages, it is possible to predict the occurrence of behaviors of substance use at as much as ~60%. Inferential statistic data from this study strongly suggest that the use of dating apps, especially among MSMs, increase the risk that dating app users will engage in substance trials due to the high possibility that they will receive persuasions from other dating app users to engage in substance trials (54.6%), in which these persuasive message could lead to ultimate behaviors of substance use. Another interesting aspect of this study is that the data are relevant to precautionary measures during sexual intercourse. Results suggest that two of three Thai MSMs preferred using substances during their sexual intercourses because excessive substance abuse reduces the substance users’ anxieties and reluctance to have sex, which increases sexual feelings of mutual pleasure.^{16–19}

Concurrently, substance use during sexual intercourses tends to be related to risky behaviors reducing the likelihood of using condoms.^{20–22} A possible reason for this occurrence is that the use of substances, including alcoholic beverages, limit the perceptions of risks from sexually transmitted infections (STIs), resulting in higher confidence, pleasantness, and satisfaction in having sexual intercourses and lower self-control, leading to an increase in the risk of spreading and being infected by STIs simultaneously.

Besides STIs, it is important to mention the short- and long-term issues associated with substance use on human health. Short-term issues include increased heart rate, dizziness, tremors, and mood changes, whereas long-term impact includes mental and physical effects.^{23,24} As a consequence, deteriorated health of the people practicing substance use, associated criminal activities, and people with psychological disorders are all risks and challenges to a healthy society.

Study limitations and further research

This study provides critical information that will assist policy makers in developing public health care strategies in Thailand. However, the authors are also aware of the inherent limitations associated with online studies that need to be addressed in future. There are several potential avenues for future studies or ongoing work by our group and colleagues. All the data were collected through online interaction, thus limiting physical interactions that always increase the validity of findings and personal thoughts about any study. Furthermore, people are sometimes reluctant to voluntarily provide information, and it is believed that the findings of this study describe a cluster of sampling units limiting diversity aspects. The study proposes future scientific work involving personal interviews and diversifying the targeted websites and social media channels. However, it was extremely encouraging, receiving such a high number of responses within a limited time frame utilized in this study.

Another limitation of this study is relevant to safer sex during intercourse. This study incorporated only condom usage question among MSMs having sexual intercourse under the influence of substance use. It is possible that some of them might be using microbicides and PreExposure Prophylaxis or other formulation that is intended to protect them from STIs during sexual intercourse. A possible future extension of this study is to explore this subject in detail. Furthermore, mobile phone applications for dating is not the only communication channel that is being used by MSMs to look for sexual dating partners. There might be other specific communication channels for people who use substances during their sexual intercourses or there might be other dating applications that are not included in the questionnaire.

Conclusion

This study provides important information relevant to the sexual behaviors of MSMs in Thailand and the associated clandestine activity of motivating others for substance use, by using modern dating apps basically intended to connect people with each other. Furthermore, the attitudes toward substance trials have positive associations with attitudes toward substance trial invitations, and both the attitudes have positive relationships with the behaviors of engaging in persuasion-induced substance trials. Concurrently, decisions to engage in persuasion-induced substance trials and satisfaction of substance trial invitations are the two main variables that affect the prediction of behaviors of substance trials. Therefore, it can be concluded that “persuasions to use

substances affect behaviors of substance use” by dating app users have positive attitudes toward substance use, when they receive stimulations, that is “persuasions to use substances”, this increases the likelihood that the dating app users would engage in behaviors of substance use. Moreover, substance use also affects the risk of STIs, because substance use during sexual intercourse decreased the use of condoms. A possible direction for further research studies is to conduct depth analytical studies on the specific issue by using both qualitative and quantitative research to determine the relationships between the attitudes and behaviors of substance use, sexual intercourses, and prevention measures.

Declaration

Consent to participate

The ethics committee of the School of Communication Arts and Management Innovation at the National Institute of Development Administration, Thailand, gave the ethical approval for this study. Written informed consent was obtained from all participants. The researchers provided respondents with a description of the study, including the possible risks to the respondent, a privacy statement, and an indication of the presence of questions about sexual activities and substance use. No identifiable private information was stored. The respondents were allowed to withdraw from the survey, and their responses were discarded. After completing the questionnaires, the respondents would see a web page showing safe sex guidelines and telephone numbers for substance reduction.

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Disclosure

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