

## **A Systematic Review of The Factors Contributing to Adolescent Illicit Drug Use within Asia**

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### **Abstract**

Adolescents are particularly vulnerable to illicit drug use, and substance use among adolescents is a worldwide health issue. Scholars have conducted many empirical studies to identify the causes of addiction, prevention, and intervention to reduce adolescent involvement in substance use and prevent substance abuse later in adulthood. Despite the significant result in determining risk and protective factors in western society, the relative success of the domain of risk and protective factors towards substance use has not been well-documented within Asia. Hence, this systematic review article examines the risk and protection factors for illicit drug use among adolescents in Asia. Preferred reporting items for Systematic Reviews and Meta-Analyses (PRISMA) to present a systematic literature review of 13 out of 363 articles from four databases (Scopus, Science Direct, Google Scholar and Dimension). The study's findings identified three main themes: individual level, interpersonal level, and institutional level. Overall, further analysis established eight sub-themes. Adolescents' individual level is most highlighted in this study. However, multiple factors within a different level, such as interpersonal, community and policy, are essential to further explore and develop effective substance abuse prevention strategies.

**Keywords:** Substance Abuse, Systematic Literature Review, Drug Addiction, Risk Factors, Protective Factors

### **Introduction**

#### **Substance use background**

Drug and substance abuse is a global problem. Statistics from the United Nations Office on Drugs and Crime (UNODC, 2021) show that around 270,000 people used drugs in 2020, an increase of 22% compared to 2010. By 2030, demographic factors estimate an 11% increase in the number of people using drugs worldwide. Introducing new psychoactive substances has resulted in significant growth in low-income countries, particularly in South and Central America, Africa, South and Southwest Asia and the Middle East. Unlike countries in the Americas and Europe, cocaine is not the primary concern of Asian countries. However, over

the past few decades, the number of opioid users worldwide has almost doubled, and in recent years, new estimates in Asia and Africa have driven this increase.

### **Substance use and Adolescent**

World Health Organization ((WHO) defines substance abuse as the harmful or dangerous use of psychoactive substances, such as alcohol and illicit drugs. It also includes the adolescents' consumption of illegal alcohol, tobacco, or prescription drugs (Chan et al., 2016). Alcohol and cigarette are categorized as licit, while cocaine, heroin, marijuana, lysergic diethylamide (LSD) and amphetamines are examples of illicit psychoactive substances. Adolescents are exposed to high risk of multiple substances and usually start with tobacco and alcohol before consuming illicit drugs (Merrin & Leadbeater, 2018). In his longitudinal study, Merrin and his team found that adolescents who started polysubstance use at 14 years old are very likely to continue consuming multiple substances, including illicit drugs, to adulthood. In a cohort study, Katherine and her team reported that adolescents who have the habit of smoking at the age of 14 are more likely to involve in later marijuana use and cocaine use (Keyes et al., 2016).

On the other hand, adolescent non-alcohol drinkers show a significantly lower rate of cannabis or other illicit drug use and a lower rate of school truancy and anti-social behaviour scores (Larm et al., 2018). These studies support the gateway hypothesis that licit substances such as tobacco and alcohol precede the subsequent use of illicit substances like cocaine or amphetamines. Studies have reported that cannabis is the gateway drug leading to other illicit drug use, especially for early adolescents before consuming other illicit drugs in early adulthood (Degenhardt et al., 2003; Secades-Villa et al., 2015; Otten et al., 2017).

### **Research Gap, Research Question and Objective of Current Studies**

Previous systematic reviews focus on the risk factors and interventions for adolescent substance abuse in high-income countries such as the United States, Sweden, The Netherlands, and other European countries (Carney & Myers, 2012; Rowe, 2012; Das et al., 2016). However, no systematic review has been conducted in the Asian context to address substance use risk factors. Due to the difference in social context and lifestyle across the different countries, a previous study reported that it is not clear that the same findings from high-income western countries can be applied to other middle and low-income countries in Asia (Hall et al., 2016). Louisa and her team also found that the initiation of drug use is not constant across different countries (Degenhardt et al., 2010). Therefore, the present systematic review focuses on determining use affecting the factors of adolescent substance use in Asia to address the knowledge gap. Understanding the factors related to adolescent substance use is essential to develop an effective intervention and prevention program to reduce the prevalence of substance use among adolescents in Asian countries. Considering the difference in social context and culture, effective school-based (Onrust et al., 2016) or parent-based interventions (Kuntsche & Kuntsche, 2016) in western countries may not be as effective in the middle- and low-income countries in Asia. The present systematic review may benefit relevant government agencies or NGOs in Asian countries in developing more localized interventions to curb adolescent substance use.

## Methods

### Systematic Review Process

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist was used as a guide for this systematic review. Previous studies are extracted from four databases, Scopus, Science Direct, Dimension.ai and Google Scholar, to study adolescent drug use factors in Asia. The flow diagram of the review process is shown in Figure 1. The systematic review consists of four stages: identification, screening, eligibility, and inclusion.

### Identification

To increase the variation of keywords in a search string, our study searches synonyms of keywords from the thesaurus, dictionaries, and previous related studies. Keyword search strings were applied in January 2022, as illustrated in Table 1. The search engines return 363 research articles. Before proceeding to the following process, 45 duplicate articles were removed from the collection of articles, as shown in Figure 1.

Table 1

#### *Keywords and Information Search Strategy*

Database	Keywords
Scopus	TITLE-ABS-KEY (("risk and protective factors") AND ("illicit drug addiction" OR "methamphetamine" OR "opioid" OR "hallucinogens" OR "ketamine" OR "marijuana" OR "cannabis" OR "amphetamine" OR "heroin" OR "drug abuse" OR "substance abuse" OR "drug dependence") AND ("adolescents" OR "student"))
Science Direct	("risk and protective factors" AND ("illicit drug addiction" OR "methamphetamine" OR "amphetamine" OR "hallucinogens" OR "marijuana" OR "opioid" OR "drug abuse") AND "adolescents")
Google Scholar	allintitle:"factors" AND "illicit drug addiction" OR "methamphetamine" OR "opioid" OR "hallucinogens" OR "ketamine" OR "marijuana" OR "cannabis" OR "amphetamine" OR "heroin" OR "drug abuse" OR "substance abuse" OR "drug dependence" AND "adolescents" OR "student"
Dimension	((("risk and protective factors") AND ("illicit drug addiction" OR "methamphetamine" OR "opioid" OR "hallucinogens" OR "ketamine" OR "marijuana" OR "cannabis" OR "amphetamine" OR "heroin" OR "drug abuse" OR "substance abuse" OR "drug dependence") AND ("adolescents" OR "student"))

### Screening

Based on the exclusion criteria in Table 2, the screening process reduced the number of articles to 67. The screening process removes any articles, not from social science, psychology, or public health. The second criterion further limits the published year of the articles to five years, from 2016 to 2021, to focus on the most recent findings in the respective fields. Next, the screening process only accepts research articles written in English and reaches the final publication stage. Any remaining research articles that do not focus on adolescents' illicit drug use are removed from the present study. In short, 251 articles were excluded, and only 67 articles remained for the next stage.

Table 2

*Inclusion and Exclusion Criteria.*

<b>Criterion</b>	<b>Included</b>	<b>Excluded</b>
Timeline	From 2016 to 2021	Before 2016 and after 2021
Type of Literature	Research articles	Review articles, books, preprints, book chapters, series, theses, and conference proceedings
Language	English	Non-English
Subject area	Psychology, social science, public health	Other than psychology, social science, public health
Research Object	Adolescent	Non-adolescent
Research Scope	Illicit drugs use	Non-illicit drug use topics such as suicide intention, HIV, alcohol abuse, internet addiction and gaming addiction.
Publication stage	Final	Other than final

*Eligibility and Inclusion*

In this stage, the remaining articles are filtered based on their relevance to the research objective. This process required a thorough study through the methodology, results, and discussion sections before excluding the irrelevant research articles from the remaining collections. 54 articles were excluded because their findings mainly focused on the context of western countries, such as the United States and Sweden, which did not match the objective and scope of this review. Therefore, only 13 articles are eligible for this systematic review.

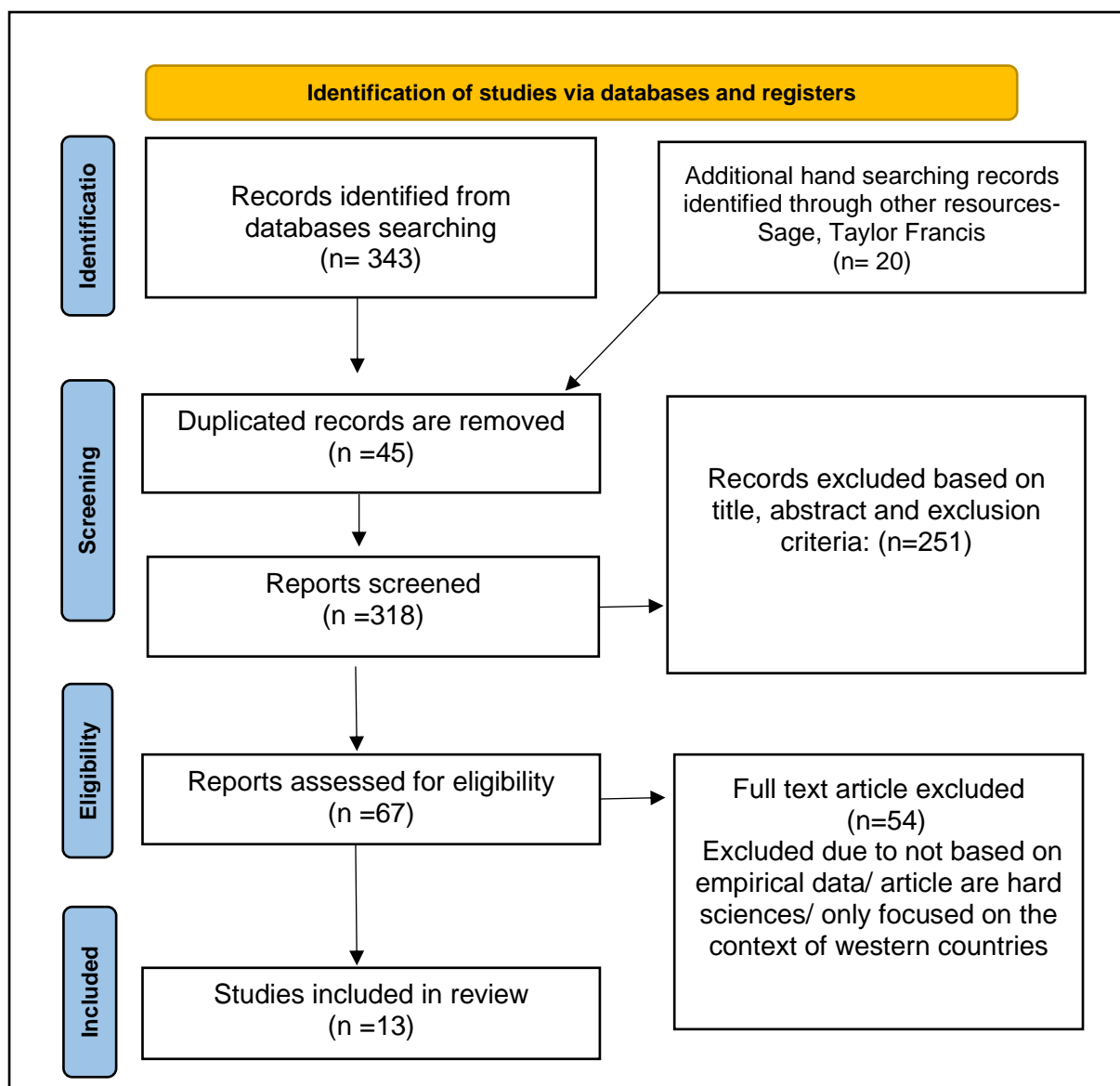


Figure 1: PRISMA Flow

## Results

General findings and background of the studies included in the review

We found 363 research articles matching the search string in the first stage. After discarding duplicate articles and excluding irrelevant articles with exclusion criterion, we reduced the total numbers to 13 articles which used the quantitative method in their analysis. The studies include two prospective cohort studies, one longitudinal study, and twelve cross-sectional studies. A summary of all 13 articles is listed in Table 3.

In the remaining collection of articles, regarding the publication year, three articles were publishing in 2021 (Khalid et al., 2021a; Oei et al., 2021; Ozylem et al., 2021), three articles were published in 2020 (Khan et al., 2020; Shek et al., 2020; Thepthien & Htike, 2020), and two article was published in 2019 (Marin et al., 2019; Rodzlan Hasani et al., 2019), followed two articles were published in 2018 (Assanangkornchai et al., 2018; Liao et al., 2018), and three articles were published in 2017 (Chongrattanakon et al., 2017; Gomez et al., 2017; Peltzer & Pengpid, 2017). More specifically, it should be noted that four previous studies focused on Malaysia's adolescent illicit drug use (Hasani et al., 2019; Khalid et al., 2021), two

studies examined Singapore adolescent and young offenders (Oei et al., 2021; Gomez et al., 2017), three studies examined Thailand adolescents (Thepthien & Htike, 2020; Assanangkornchai et al., 2018; Chongrattanakon et al., 2017) and other than that, each study on Hong Kong adolescent (Shek et al., 2020), Taiwan adolescent (Liao et al., 2018). Iran adolescent (Marin et al., 2019) and Bangladesh adolescent (Khan et al., 2020). Another two studies examined Iran, Kuwait, Malaysia, Mongolia, and Vietnam (Peltzer & Pengpid, 2017) and Indonesia, Laos, Malaysia, Myanmar, Philippines, and Thailand (Ozeylem et al., 2021), respectively. In terms of substance, cannabis is mentioned in five studies, amphetamine-type in seven studies, opioid (two), and kratom (three). The analysis produced three domains and eight sub-domains related to drug use factors based on the social-ecological model. As presented in Table 3, the three domains are individual (5 subdomains), interpersonal (2 subdomains) and institutional (1 subdomain).

### **Main Findings**

This section revolves around three main domains: individuals, interpersonal and Institution, and the emerging eight subdomain (refer to Table 4).

#### **Individual Domain**

The selected articles report the significant relationship between individual factors and adolescent illicit drug use. Therefore, the findings for this domain were further broken into five more subdomains: socio-demographics, individual traits, adverse childhood experiences, risk behaviour, attitude, and perception.

#### **Socio-demographics**

Socio-demographics are nothing more than characteristics of a population. Generally, Socio-demographics include age, education, religion, employment, marital status, income levels, migration background, race, and ethnicity. The previous study revealed that age and gender are significant in illicit drug use among adolescents, and Khalid found that older adolescents who smoke significantly use kratom (Khalid et al., 2021). Research conducted in Thailand also showed that older male students aged 15 years with poor academic performance are more likely to use illicit drugs (Assanangkornchai et al., 2018). Thus, male is a vulnerable use of illegal drugs compared to females. Research conducted in Taiwan showed that males had a higher risk of using an illicit drug such as ketamine during their lifetime (Liao et al., 2018; Ozeylem et al., 2021). The result is like the study conducted in Hong Kong; the male showed a slightly higher level of substance use than female adolescents.

#### **Adverse childhood Experience (ACE)**

An adverse childhood experience is defined as a potentially devastating event that occurs before the age of 18. ACE included child maltreatment (physical, sexual, and emotional abuse, physical and emotional neglect), house challenges (violence against mothers, divorce of parents, problem of substance abuse by members of a family, issues of mental illness by members of a family, imprisonment of members of a family, family violence, spanking, poverty), peer victimization (bullying) and community violence (seen the physical fight, seen or heard stabbing or threat of stabbing with a weapon, seen or heard shooting or threat of shotting with a gun) (Afifi, 2020). Five previous studies showed that ACE is significantly associated with prolonged use among adolescents. They frequently bullied victims with an elevated risk of developing regular substance use, especially regular alcohol, and

amphetamine use (Ozeylem et al., 2021). Experience in violence is a risk factor for illicit drug use (Thepthien & Htike, 2020). Family members' use of the illicit drug as a factor increases the risk of multiple drug use by an adolescent (Liao et al., 2018). Furthermore, research in Thailand shows that adolescents exposed to social disadvantages such as living without parents or family members use drugs significantly will engage in multiple risk behaviours, including drug use, especially cannabis, kratom cocktail, and methamphetamine (Assanangkornchai et al., 2018). Furthermore, Oei's research on ACE and substance uses among young offenders found a positive relationship between ACE and drug use dependency (Oei et al., 2021). A similar result indicated that exposure to ACEs was associated with an increased risk of drug-related SUDs, an earlier age of drug initiation, and more severe use of illicit drugs in adolescents.

### **Risky Behaviour**

Risky behaviour is a risk that exposes a person to harm or a significant risk of harm, which prevents them from achieving their potential in life and causes significant morbidity or mortality (Ansari et al., 2016). Risk behaviours in adolescents, such as alcohol consumption, drug use, poor diet, physical inactivity, and unprotected sexual activity, are common (Kipping et al., 2015). Smoking was significantly only for ketamine users (Liao et al., 2018).

### **Individual Traits**

Individual traits reflect people's characteristic patterns of thoughts, feelings, and behaviours. Liao's study showed sensation seeking is significantly impacted the use of ketamine, methamphetamine, MDMA and marijuana use (Liao et al., 2018). In other words, adolescents score higher on the sensation-seeking scale, with an increased tendency to use illicit drugs. Conversely, optimism was inversely associated with cigarette smoking status, hookah smoking status and using illicit drugs (Marin et al., 2019). Thus, optimistic people are more likely to avoid using any substance.

### **Knowledge, Attitude and Skill**

Drug-related knowledge was a protective factor. Adolescents with higher scores of drug-related knowledge are less likely to use illicit drugs (Liao et al., 2018); however, Khalid's research revealed that Kratom users gained a higher level of knowledge than their nave peers (Khalid et al., 2021b). The findings showed that despite greater understanding, adolescents' curiosity and adventurous spirit still dominate today. Besides knowledge, an attitude has a crucial leading role in behaviour formation. Young people with positive attitudes to the Kratom juice cocktail (KJC) are 30 times more likely to be KJC users than people with negative attitudes to KJC (Chongrattanakon et al., 2017). In the same findings, Chongrattankon explored the relationship between self-efficacy and self-regulation towards drinking KJC. The results showed that high self-efficacy and self-regulation are vital protective factors. Adolescents with high self-efficacy will believe and be confident in own ability to solve any challenges faced and resist social pressure in illicit drug use. Furthermore, an adolescent with high self-regulation can control feelings, thoughts and actions, decreasing the risk of illicit drug use.

### **Interpersonal Domains**

The selected articles report the significant relationship between interpersonal factors and adolescent illicit drug use. Therefore, the findings for this domain were further broken into two more subdomains: family factor and peer factor.

#### **Family Factors**

Parent Understanding and Parental Behavioural Control are the factors mentioned by previous studies to protect adolescents from illicit substance use. Ozeylem's study found that adolescents who feel of being understood by their parents were shown as a protective factor against regular alcohol and marijuana use (Ozeylem et al., 2021). The initial level of children's substance use in early adolescence was found to be negatively predicted by parental behavioural control and relationships with adolescents. More specifically, the relationship between the mother and the adolescent was a reliable longitudinal predictor of the use of alcohol in adolescents (Shek et al., 2020). In other words, mothers exerted a slightly more significant influence on adolescent substance use than fathers.

#### **Peer Factors**

Peer Influence, Peer Support, and Peer Acceptance are the factors mentioned by previous studies to protect adolescents from illicit substance use. Kratom users mostly retrieve their kratom supply from their friends or a middleman; surprisingly, some even get the supply for their family members. Similarly, other research conducted in Thailand showed that drug use by peers is one predictor contributing to illicit drug use among adolescents (Assanangkornchai et al., 2018). In addition, Chongrattanakon's study reported that peers drinking Kratom juice cocktails were strongly associated with illicit drug use (Chongrattanakon et al., 2017). Inadequate peer support is a risk factor significant with illicit drug use especially for male adolescent (Rodzlan Hasani et al., 2019; Khalid et al., 2021).

#### **Institutional Domains**

Liao found that adolescents with higher scores in drug awareness and school drug associated education had a lower likelihood of being rejected as single- or multi-drug users (Liao et al., 2018). In other words, school-based prevention programs effective to prevention illicit drug use among adolescents.



Table 3

*Study Characteristics and Main Findings*

No	Year	Author	Country	Study Objectives	Study Design	Types of substance	Result/findings/Factors
1	2021	Khalid et al	Malaysia	To explore the practice and perspectives of kratom use and misuse among adolescents in northwest Malaysia	Cross-sectional	Kratom	Peer influence, improved stamina, as a painkiller, to be accepted by the peer, older age, being active smokers)
2	2021	Oei et al	Singapore	To examine relationships between ACE and substance use in youth offenders in Singapore.	Cross-sectional	inhalant, polysubstance, amphetamine	Adverse childhood experience
3	2021	Ozeylem et al	Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand	To examine personal and interpersonal factors that contribute to risk for substance use among adolescents in six ASEAN LMIGs	Cross-sectional	marijuana, amphetamine	male, being frequently bullied, being worried sometimes or almost always, lack of close friends  positive factor: feelings of being understood by a parent
4	2020	Shek et al	Hong Kong	To examine the concurrent and longitudinal influences of parental and maternal factors on the level of and changes in substance use among early adolescents	Longitudinal	tobacco, alcohol, ketamine, cannabis, cough medicine, solvent thinner	father behavioural control, mother behavioural control, mother-adolescent relationship
5	2020	Thepthien et al	Bangkok, Thailand	To examine the prevalence and associations between ACEs and adverse health outcomes among adolescents.	Cross-sectional	cannabis, heroin, methamphetamine, ecstasy, ketamine, and crystal methamphetamine.	Adverse childhood experience-experience of violence /exposure to abuse and household dysfunction
6	2020	Khan et al	Bangladesh	To examine the risk factors for tobacco and other substance use among school-going adolescent	Cross-sectional	tobacco, alcohol, marijuana	Being bullied, loneliness, lack of peer support, truancy
7	2019	Marin et al	Sonqor country, Iran	To examine the relationship between optimistic explanatory style and cigarette smoking, hookah smoking, and illicit drug use among high school students	Cross-sectional	opium, cannabis, ecstasy, methamphetamine	optimistic
8	2019	Rodzlan Hasani et al	Malaysia	To determine the prevalence of illicit drug use and its associated factors among male adolescents in Malaysia.	Cross-sectional	marijuana, amphetamine, methamphetamine	younger age, rural school area, marital status of parent, current smoker, ever having sex, truancy, involved in a physical fight, lack of peer support

9	2018	Liao et al	Northern Taiwan	To identify risk and protective factors	Cross-sectional	Ketamine, methamphetamine	perceived availability of illicit drugs, betel nut chewing, drug use by a family member, peer drug use, sensation seeking, and smoking. Drug-related knowledge
10	2018	Assanan gkornchai et. al	Thailand	To characterize adolescents based on clusters of their health-risk behaviours and identify individual, family and school environmental factors	Cross-sectional	cannabis, kratom or kratom cocktail, methamphetamine	drug use problems among family members, perceived low level of disdain by friends if a student used drugs, and drug use by peers.

No	Year	Author	Country	Study Objectives	Study Design	Types of substance	Result/findings/Factors
11	2017	Chongrattanakon et. al.	Surat Thani Province, Thailand	To explore the prevalence of Kratom juice cocktail (KJC) consumption among youth and psychosocial determinants.	Cross-sectional	kratom	self-efficacy, attitude, self-regulation, the existence of peers drinking KJC,
12	2017	Peltzer et.al	Iraq, Kuwait, Malaysia, Mongolia, and Vietnam	To estimate the prevalence of cannabis and amphetamine use and explore the factors associated with drug use among adolescents in five Asian countries.	Cross-sectional	cannabis, amphetamine	Cannabis use factors -male, parent smoking habits, current cigarette smoking  Amphetamine use -suicidal ideation, school truancy -being a victim of physical assault -bullying victimization
13	2017	Gomez et.al	Singapore	To establish the prevalence of ACE espouser among adolescents from a national addiction treatment centre	Cross-sectional	Amphetamine, cannabis, Hallucinogen, inhalant, Opioid, Sedative/Hypnotic /Anxiolytic	Adverse childhood experience

Table 4

The main themes and the subthemes

Author s	Individual Domain					Interpersonal Domain					Instituti onal Domain						
	Age	Gender	ACE	Risk behaviour	Knowledge Personality Traits	Self-efficacy	Self-regulation	Attitude	Perceive avability of	PI	PA	PS	PBC	PU	Mother-child relationship	School associated education	drug
Khalid et al	x			ü						ü	ü						
Oei et al				ü													
Ozeylem et al		ü	ü										ü				
Shek et. al		ü											ü		ü		
Thepthien et al				ü													
Khan et al				ü									ü				
Marin et al						ü											
Hasani et al	ü		ü	ü									ü				
Liao et. al	ü	ü	ü	ü	ü		ü										ü
Assanangkornchai et. al	ü	ü		ü									ü	ü			
Chongrattanon et. al							ü	ü	ü				ü				
Peltzer et.al		ü	ü	ü													
Gomez et.al				ü													
PI	:	Peer Influence															
PA	:	Peer Acceptance															
PS	:	Peer Support															
PB	:	Parental Bonding															
PBC	:	Parental Behavioural Control															
PU	:	Parent Understanding															

## **Discussion**

This systematic review examines the factors contributing to adolescent illicit drug use in Asia. All aspects are categorized into three domains (individual, interpersonal and institutional) based on the level of the social ecology model.

Six articles contributed to the subdomain of adverse childhood experience within the individual-level domain. Although the research design and topic are different, all papers show statistically significant results in predicting possible drug abuse risk factors in adolescents. Bullying and household dysfunction (such as parental substance use or divorce) are harmful growth exposure and significantly predict a higher likelihood of alcohol and marijuana use (McCoy et al., 2020). In specific, cannabis use is strongly associated with being a bully victim. Victims of bullying are three to six times more likely to abuse drugs, as they can use drugs as coping mechanisms for fear of attack and peer rejection (Gaete et al., 2017). Furthermore, the bully-victim also use substances to increase their social image among their peers. However, much work is still needed to understand the causes of the abuse of drugs by the victims.

Household dysfunctions (parent separation or divorce, exposure to substance use in the household, family violence) are a risk indicator for those adolescents with episodes of harmful growth exposure. Parental substance use is associated with negative parental behaviour, including limited parental monitoring or absence of parental supervision, low parental participation, ineffective control of children's behaviour and inadequate discipline skills, including forced control, severe discipline, and failure to follow-up (Smith & Wilson, 2016). In addition, parents or family members who use substances will develop norms that favour the use of substances and model this behaviour to encourage children to imitate. These findings showed the importance of continuous surveillance and monitoring of adolescents who experienced an episode of adverse childhood experience to prevent adolescents develop health-harming behaviour in adulthood.

In addition, research has been found that individual traits may be a protective factor or a risk factor for drugs used in adolescents. Previous study from Iran showed that non-smoker reported higher optimism score than tobacco smoker or illicit drugs user; student with low optimism is more likely to smoke and use illegal drugs (Ansari et al., 2019); adolescent in Vietnam with high optimism about their future less likely to drink alcohol (Nguyen, 2021). In a contrast, sensation-seeking is a risky individual trait. Studies have found an association between sensation seeking and a broad spectrum of risk behaviours, including marijuana use. However, sensation-seeking alone does not lead to marijuana use. Barnum's study found that risk appraisal and normative influences mediate the relationship between sensation seeking and marijuana use. Furthermore, perceptions of risk appear strongly influenced by proximal peer norms (Barnum & Armstrong, 2019). In short, public health education, awareness program, guidance and psychological support should be consistently applied to adolescents with risky personality traits.

Two articles contributed to the subdomain of parent factors within the interpersonal-level domain. Family structures were found to have both positive and negative relationships with drug misuse among adolescent within the family factor domain. Parental behavioural control, also known as knowledge of children monitoring, expectation setting, and discipline, refers to the limitations and rules that parents impose to regulate their children's behavior (Shek et al.,

2020). Effective parental behavior control has often been found to be a barrier to substance misuse. High level of parental monitor knowledge and strong parent-child relation quality can protect his children from harmful influences (Branstetter & Furman, 2012). Therefore, any effort to prevent adolescents from beginning to use drugs or to reduce their current drug use must involve parents, particularly through improved parent-child interaction and parental supervision of their children's activities.

Three articles contributed to the subdomain of peer factors within the interpersonal-level domain. Previous studies have indicated that peer influence on illicit drug use is a significant, perhaps the most important, predictor of adolescent illicit drug use. However, peer Influence may be a protective factor or a risk factor for drugs used in adolescents. Rodzlan mentioned that peer influence is a more vital factor for males during early adolescence (Hasani et al., 2019). A previous study also described the susceptibility to peer pressure increases during early adolescence, peaking around age 14 and declining after that (Steinberg & Monahan, 2007). Therefore, younger adolescents aged 13-15 are more likely to engage in illicit drug use than late adolescents. This concept was supported by longitudinal research conducted in Malaysia that adolescents admitted to using drugs for the first time before they turned 14 years (Farid et al., 2016). Thus, early adolescence is a crucial development stage requiring attention from family, school, and community, as well as policy authority to prevent illicit drug use among adolescents.

### **Conclusion**

In conclusion, based on the social ecology model, this review has addressed several recent findings about the risk and protective factors for adolescent illegal drug use. This literature identified multiple levels of factors that influence adolescent illicit drug use. Specifically, previous studies mainly focused on exploring adolescents' individual level factors (sociodemographic, personality traits, adverse childhood experience and cognitive ability) and interpersonal level factors (parent and peer relationship) rather than the community and policy levels. Most studies purposely focus on the relationship between risk factors and problems to develop strategies to decrease the risk of adolescents using illicit drugs. However, behaviour formation is influenced by the interaction of different levels. Furthermore, decisions on prevention policies, such as legal legislation and enforcement against drug abuse, are often made at the community and policy levels. Thus, the future study can expand to study relevant and holistic factors to prevent and control illicit drug abuse among adolescents.

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