



# Early Substance Use Initiation And Psychological Distress Among Adolescents In Five ASEAN Countries: A Cross-Sectional Study

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**Aim:** The study aimed to assess the associations between substance use early initiation (<12 years) (smoking cigarettes, alcohol and drug use) with psychological distress among adolescents in five ASEAN countries.

**Methods:** Cross-sectional data were analysed from 33,184 school adolescents, with a median age of 14 years, from Indonesia, Laos, Philippines, Thailand and Timor-Leste that took part in the “Global School-Based Student Health Survey (GSHS)” in 2015.

**Results:** The overall prevalence of pre-adolescent (<12 years) cigarette use was 10.6%, 8.1% pre-adolescent current alcohol use, and 4.2% pre-adolescent drug use initiation. In adjusted multinomial logistic regression analysis, pre-adolescent initiation of cigarette smoking, pre-adolescent initiation of alcohol use, pre-adolescent initiation of drug use and multi-substance pre-adolescent initiation were highly associated with medium (=1) and high (=2–5) psychological distress (of five psychological distress items: no close friends, loneliness, anxiety, suicidal ideation and suicide attempt). Late initiation of cigarette use and late initiation of drug use were not associated with medium and/or high psychological distress.

**Conclusion:** Early prevention programmes should target concurrent early substance use initiation in order to prevent possible subsequent psychological distress.

**Keywords:** early substance use, psychological distress, adolescents, ASEAN countries

## Introduction

During adolescence substance use, such as alcohol, tobacco, and illicit drugs, e.g., cannabis, is often initiated and a pattern of its use may become established.<sup>1</sup> Studies mainly in high-income countries found that early substance use initiation is associated with substance use disorders, polysubstance use, and/or mental disorders,<sup>1–4</sup> including suicidal behaviour.<sup>5</sup> Therefore, the study aimed at investigating the association between early substance use initiation, polysubstance use and psychological distress among adolescents in five middle-income countries in ASEAN. The prevalence of current tobacco use among adolescents in ASEAN countries was 11–15% in Brunei, Indonesia, Malaysia, Thailand, and the Philippines, and the prevalence of current alcohol use was 16% to 24% in Thailand, Vietnam, and the Philippines.<sup>6</sup> While the prevalence of lifetime cannabis and amphetamine use was 0.9% and 1.0%, respectively, in Malaysia, and 0.6% and 0.2%, respectively, in Vietnam.<sup>7</sup>

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## Methods

### Sample And Procedure

Cross-sectional data from the 2015 “Global School-Based Student Health Survey (GSHS)” of five ASEAN countries were analyzed. The GSHS uses a “cluster sampling design in two stages (schools and classrooms) in order to produce nationally representative samples of school children in middle schools.”<sup>8</sup> “Students completed a self-administered questionnaire under the supervision of trained survey

administrators.”<sup>8</sup> “Country level ethics review boards approved the GSHS, and informed consent was obtained from the students, parents and/or school officials.”<sup>8</sup>

### Measures

The GSHS measure questions that were used in this study are detailed in Table 1.<sup>8</sup> “Early cigarette smoking, early drinking alcohol, and early drug use initiation were trichotomized into never, prior to 12 years, and 12 or more years.”<sup>5</sup>

**Table 1** Variable Description

Variables	Question	Response Options
Age	“How old are you?”	11 years old or younger to 18 years old or older
Sex	“What is your sex?”	Male, female
Hunger	“During the past 30 days, how often did you go hungry because there was not enough food in your home?”	1 = never to 5 = always (coded 1–3=0 and 4–5=1: most of the time or always)
Early cigarette use initiation	“How old were you when you first tried a cigarette?”	1=I have never smoked cigarettes; 2=7 years old or younger to 8=18 years old or older (coded 1=never, 2=2–4:<12 years, and 3=5–8:12–18 years)
Early alcohol use initiation	“How old were you when you had your first drink of alcohol other than a few sips?”	1=I have never had a drink of alcohol other than a few sips; 2=7 years old or younger to 8=18 years old or older (coded 1=never, 2=2–4:<12 years, and 3=5–8:12–18 years)
Early drug use Initiation	“How old were you when you first used drugs?”	1=I have never used drugs; 2=7 years old or younger to 8=18 years old or older (coded 1=never, 2=2–4:<12 years, and 3=5–8:12–18 years)
Current tobacco use	“During the past 30 days, on how many days did you smoke cigarettes/use any tobacco products other than cigarettes, such as pipes, roll your own cigarettes, or smokeless tobacco?”	1=0 days to 7=All 30 days (coded 1=0 and 2–7=1: at least 1 or 2 days)
Current alcohol use	“During the past 30 days, on how many days did you have at least one drink containing alcohol?”	1 = 0 days to 7 = All 30 days (coded 1=0 and 2–7=1: at least 1 or 2 days)
Current cannabis use	“During the past 30 days, how many times have you used marijuana (also called ... country specific names)?”	1=0 times to 5=20 or more times (coded 1=0 and 2–5=1: at least 1 or 2 times)
Physically attacked	“During the past 12 months, how many times were you physically attacked?”	1=0 times to 8=12 or more times (coded 1=0 and 2–8=1: at least once)
In a physical fight	“During the past 12 months, how many times were you in a physical fight?”	1=0 times to 8=12 or more times (coded 1=0 and 2–8=1: at least once)
Bullied	“During the past 30 days, on how many days were you bullied?”	1=0 days to 7=All 30 days (coded 1=0 and 2–7=1: at least 1 or 2 days)
<b>Psychological distress</b>		
No close friends	“How many close friends do you have?”	1 = 0 to 4 = 3 or more (coded 1+=0, 0=1)
Anxiety	“During the past 12 months, how often have you been so worried about something that you could not sleep at night?”	1=never to 5=always (coded 1–3=0 and 4–5=1)

(Continued)

**Table 1** (Continued).

Variables	Question	Response Options
Loneliness	“During the past 12 months, how often have you felt lonely?”	1=never to 5=always (coded 1–3=0 and 4–5=1)
Suicide ideation	“During the past 12 months, did you ever seriously consider attempting suicide?”	Yes, No
Suicide attempt	“During the past 12 months, how many times did you actually attempt suicide?”	1=0 times to 5=6 or more times (coded 1=0 and 2–5=1: 1 or more times)
Peer support	“During the past 30 days, how often were most of the students in your school kind and helpful?”	1=never to 5=always (coded 1–3=0 and 4–5=1)
	<b>Parental support</b>	
Parental supervision	“During the past 30 days, how often did your parents or guardians check to see if your homework was done?”	1=never to 5=always (coded 1–3=0 and 4–5=1)
Parental connectedness	“During the past 30 days, how often did your parents or guardians understand your problems and worries?”	1=never to 5=always (coded 1–3=0 and 4–5=1)
Parental bonding	“During the past 30 days, how often did your parents or guardians really know what you were doing with your free time?”	1=never to 5=always (coded 1–3=0 and 4–5=1)
Parental respect for privacy	“During the past 30 days, how often did your parents or guardians go through your things without your approval?”	1=never to 5=always (coded 1–3=0 and 4–5=1)

The psychological distress items (no close friends, loneliness, anxiety, suicidal ideation and suicide attempt) were summed, and grouped into 0=0 low, 1=1 medium and 2–5=2 high. The four items on parental or guardian support were summed, and classified into three groups, 0–1 low, 2 medium and 3–4 high support.<sup>9</sup>

## Data Analysis

Descriptive statistics were applied in order to present tabulations. Multinomial logistic regression was utilized to estimate the relative risk ratios (with 95% confidence interval=CI) for medium and high psychological distress. Missing data were not included in the analysis. All statistical procedures were performed using “STATA software version 15.0 (Stata Corporation, College Station, TX, USA)”, which took into account the complex survey design.

## Results

### Characteristics Of The Sample

The study sample included 33,184 middle school children, with a median age of 14 years (interquartile range= 2 years) from Indonesia, Laos, Philippines, Thailand and Timor-Leste; the overall response rates ranged from 72% in Laos to 94% in Indonesia.<sup>6</sup> The overall prevalence of

pre-adolescent (<12 years) cigarette use was 10.6%, 8.1% pre-adolescent current alcohol use, and 4.2% pre-adolescent drug use initiation. There were country variations in the prevalence of pre-adolescent cigarette use, ranging from 3.3% in Laos to 11.0% in Indonesia and the Philippines, in the prevalence of pre-adolescent alcohol use, ranging from 3.9% in Indonesia to 14.1% in Timor-Leste, and in the prevalence of pre-adolescent drug use, ranging from 0.6% in Laos to 7.4% in the Philippines (see Table 2).

### Associations Of Substance Use Initiation With Medium And High Psychological Distress

In adjusted multinomial logistic regression analysis, pre-adolescent initiation of cigarette smoking, pre-adolescent initiation of alcohol use, pre-adolescent initiation of drug use and multi-substance pre-adolescent initiation were highly associated with medium and high psychological distress. Late initiation of cigarette use and late initiation of drug use were not associated with medium and/or high psychological distress (see Table 3).

## Discussion

The study found prevalences of pre-adolescent initiation of substance use, which seem lower than in previous studies,

**Table 2** Descriptive Characteristics Of Substance Use Initiation

Variable	Onset Cigarette Smoking			Onset Alcohol Use			Onset Drug Use			Early Substance Use		
	Non-Initiators	<12 Years	12–18 Years	Non-Initiators	<12 Years	12–18 yrs	Non-Initiators	<12 Years	12–18 Years	0	1	2 Or 3
	%	%	%	%	%	%	%	%	%	%	%	%
All (N=33,184)	76.9	10.6	12.4	73.2	8.1	18.6	93.8	4.2	1.9	86.0	10.6	3.4
Indonesia (33.6%)	77.8	11.0	11.2	91.2	3.9	4.9	97.3	2.1	0.6	88.6	9.6	1.8
Laos (11.1%)	88.3	3.3	8.4	36.9	6.9	56.2	97.6	0.6	1.8	91.4	6.9	1.7
Philippines (26.4%)	74.0	11.0	15.1	51.5	13.8	34.8	89.4	7.4	3.1	81.4	12.8	5.8
Thailand (17.8%)	78.9	9.4	11.7	55.3	12.1	32.6	90.1	5.5	4.4	85.0	10.2	4.9
Timor-Leste (11.2%)	66.7	9.9	23.4	70.2	14.1	15.7	90.4	7.0	2.6	83.9	11.0	5.0
Female (51.1%)	91.1	4.1	4.8	78.6	5.7	15.8	96.4	2.7	0.9	92.8	5.5	1.7
Male (48.9%)	61.7	17.6	20.7	67.5	10.7	21.8	91.1	5.8	3.0	78.3	16.3	5.4
Hunger (5.2%)	70.1	12.3	17.6	66.0	12.1	21.9	87.4	8.4	4.1	80.9	14.1	5.0
Current tobacco use (13.9%)	3.4	41.5	55.1	32.5	28.3	39.2	67.2	22.5	10.3	54.4	24.6	21.0
Current alcohol use (12.5%)	41.6	25.0	33.3	0	33.3	66.7	71.2	18.5	10.3	60.7	20.3	19.1
Current cannabis use (3.1%)	14.0	61.2	24.8	5.2	66.5	28.2	0	76.2	23.8	18.7	19.1	62.2
Physically attacked (33.1%)	66.8	16.7	16.5	65.6	13.1	21.4	89.1	8.2	2.8	78.6	14.5	6.9
In physical fight (28.0%)	61.3	19.4	19.3	59.3	15.8	24.9	86.1	9.9	4.0	75.0	16.5	8.5
Being bullied (30.6%)	70.2	15.4	14.4	60.3	15.3	24.5	87.8	9.2	3.0	78.4	14.3	7.3
Psychological distress												
Low (76.8%)	80.9	7.7	11.4	79.6	4.6	15.8	97.4	1.3	1.3	89.3	9.3	1.4
Medium (14.6%)	72.6	14.3	13.1	62.0	13.4	24.6	88.4	8.7	2.8	80.8	12.9	6.4
High (8.6%)	62.6	17.9	19.4	46.8	20.3	32.9	84.5	11.3	4.3	73.7	16.5	9.8
Peer support (36.8%)	80.5	8.1	11.4	77.3	5.2	17.6	89.1	9.0	1.8	86.0	5.8	8.1
Parental support												
Low (51.6%)	71.8	13.4	14.8	67.7	10.6	21.7	91.2	6.4	2.4	82.9	12.1	5.0
Medium (27.0%)	80.1	8.6	11.3	76.7	6.0	17.3	96.5	1.8	1.7	87.9	10.1	2.0
High (21.4%)	86.0	5.8	8.1	82.7	4.1	13.2	98.1	0.9	1.0	91.4	7.5	1.1

e.g., in four Pacific Island countries (15.7% smoking; 13.8% alcohol use, and 12.9% drug use),<sup>5</sup> France (pre-teen cigarette initiation 24.1%, pre-teen alcohol initiation 65.1% and pre-teen cannabis initiation 3.9%), and the United States

**Table 3** Adjusted Prevalence Ratios For The Associations Of The Initiation Of Substance Use With Medium And High Psychological Distress

Variable	Medium Psychological Distress	High Psychological Distress
	ARRR (95% CI) <sup>a</sup>	ARRR (95% CI) <sup>a</sup>
Initiation of smoking cigarettes		
Non-initiators	1 (Reference)	1 (Reference)
<12 years	1.51 (1.29, 1.77)***	2.46 (2.04, 2.98)***
≥12 years	0.87 (0.72, 1.07)	1.64 (1.30, 2.07)***
Initiation of alcohol use		
Non-initiators	1 (Reference)	1 (Reference)
<12 years	1.92 (1.59, 2.31)***	3.05 (2.48, 3.75)***
≥12 years	1.24 (1.08, 1.43)**	1.73 (1.46, 2.06)***
Initiation of drug use		
Non-initiators	1 (Reference)	1 (Reference)
<12 years	2.68 (2.04, 3.53)***	2.01 (1.31, 3.08)***
≥12 years	0.98 (0.64, 1.49)	1.07 (0.77, 1.48)
Initiation of substance use		
0	1 (Reference)	1 (Reference)
1	1.35 (1.17, 1.56)***	1.71 (1.40, 2.09)***
2 or 3	2.58 (1.94, 1.56)***	3.23 (2.39, 4.38)***

**Notes:** <sup>a</sup>Adjusted for country, sex, age, socioeconomic status (hunger experience), current substance use, physically attacked, in physical fight, being bullied, peer and parental support; \*\*\*P<0.001; \*\*P<0.01.

**Abbreviation:** ARRR, adjusted relative risk ratio.

(pre-teen cigarette initiation 18.1%, pre-teen alcohol initiation 27.7% and pre-teen cannabis initiation 9.7%).<sup>10</sup> The World Health Organization<sup>11</sup> notes that alcohol consumption in Southeast Asia is lower than in other regions of the world, and in particular, in Indonesia, a predominantly Muslim country, alcohol use may be lower because Islam prohibits the consumption of alcoholic beverages.<sup>12</sup>

The study confirmed previous findings,<sup>1–5</sup> showing an association between early substance use initiation and psychological distress in this adolescent population in Southeast Asia. The correlations between psychological distress, illicit and licit use of drugs, such as alcohol and tobacco, may develop, because psychological problems and illicit and licit drug users may have common risk factors.<sup>13,14</sup>

## Study Limitations

The study was cross-sectional, which precludes causal inferences. Drug use was measured by self-reporting and

may have been underreported. Several study indicators were assessed with single items, and future studies should employ more comprehensive measures. The study did also not assess urban–rural residence, which should be included in future studies.

## Conclusion

The study confirmed previous findings, showing an association between early substance use initiation and psychological distress in this adolescent population in Southeast Asia. Early prevention programmes should target concurrent early substance use initiation in order to prevent possible subsequent psychological distress.

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## Disclosure

The authors report no conflicts of interest in this work.

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