



The relationship of lifetime substance-use disorder with family functioning, childhood victimisation, and depression, among juvenile offenders in Malaysia

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ABSTRACT

Introduction: Adolescent substance use is a multifactorial social issue that leads to detrimental outcomes. The aim of this study is to understand the association of a lifetime history of substance abuse or dependence with family functioning, childhood victimisation, and depression, among adolescent male inmates in a juvenile detention centre in Malaysia.

Methods: This study was cross-sectional involving 230 inmates and was conducted in a juvenile detention centre in Malaysia. The mean age of the participants was 16.65 years, with the highest percentage from the Malay ethnicity (87.8% where n = 202). The Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID), Adolescent Alcohol and Drug Involvement Scale (AADIS), Family Adaptability and Cohesion Evaluation Scale (FACES) IV and Juvenile Victimization Questionnaire Second Revision (JVQ-R2) were used as instruments.

Results: The prevalence of a lifetime history of substance abuse and substance dependence is 72.6% and 58.3%, respectively. A lifetime history of substance abuse and dependence had a significant association with age, race, religion, and peer/sibling victimisation. Further analysis reveals that an increase in age can be a predictor of both lifetime history of substance abuse and dependence while peer/sibling victimisation may predict lifetime history of substance abuse. There was no significant association of lifetime substance-use disorder with family functioning and depression in the juvenile offenders.

Conclusions: Adolescents exposed to peer/sibling victimisation might be at a higher risk of developing a substance-use disorder. At-risk groups need to be identified, assessed, and have intervention early to prevent adverse outcomes.

1. Introduction

Illicit drug use is a global concern that has contributed to numerous detrimental effects not only on a personal level but also on the family, community, and country levels. Globally, the World Drug Report 2019 revealed that between the ages of 15 and 64 years, around 271 million people (3.5 per cent of the global population) used an illicit drug in the year 2017 (United Nations Office on Drugs and Crime UNODC, 2019). The earlier a person begins experimenting with substance use, the higher their chance of developing substance-use disorder is (Jordan &

Andersen, 2016). Illicit drugs will have significantly more adverse effects on the health and psychosocial well-being of adolescents than on that of adults, and often lasting decades into the adolescents' lives. Thus, delaying an adolescent's role transition owing to unemployment, financial dependence, and poor interpersonal relationships (Hall et al., 2016).

The World Health Organization (WHO) (2014) identifies adolescence as a critical period in human physical and psychological development, that is, from puberty up to legal adulthood. It is, however, of concern that during this critical period of growth, drug use is very high.

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The start of substance use is often initiated between 12 and 17 years old, and that problem may peak between the ages of 18 and 25 years (United Nations Office on Drugs and Crime (UNODC), 2018). It was found that illicit-drug-use were of higher prevalence among the youth population in both lifetime and recent use particularly in Europe, the United Kingdom, Kenya and the USA (Center for Behavioral Health Statistics and Quality, 2018; European Monitoring Centre for Drugs and Drug Addiction, 2017; National Authority for the Campaign Against Alcohol and Drug Abuse, 2012; Office for National Statistics, 2017).

In Malaysia, the number of adolescent substance users showed an increasing trend from 2012 to 2016 (IPH, 2018; National Anti-Drugs Agency, 2020). There were 437 cases of substance use for adolescents aged 13 to 18 years and 18,986 cases for youths aged 19 to 39 years, as recorded by the Malaysian National Anti-Drugs Agency (National Anti-Drugs Agency, 2020). Lack of enforcement of licit substance use among adolescents in Malaysia has led to early initiation of such use among the younger populations since cigarettes and alcohol are easily accessible in grocery stores and supermarkets. Among Malaysian adolescents, it was found that the prevalence for ever being a smoker was between 9.1% and 14.6% (Johari et al., 2020; Lim et al., 2017). Smoking cigarettes was a strong predictor (six times more likely than non-smokers) of lifetime illicit substance use among Malaysian male adolescents (Rodzlan Hasani et al., 2019). Furthermore, it is estimated that 1 in 6 adolescents and 1 in 3 young adults have reported a lifetime use of recreational and hard drugs (Razali & Kliewer, 2015).

Malaysia consists of people of different races, ethnicities, and religions. The largest group consists of three main ethnicities, the majority being Malays followed by the Chinese and the Indians. Bumiputera is a blanket term used to refer to the Malays along with the indigenous peoples of Malaysia. This includes the Kadazan-Dusun, Iban, Penan, and the Orang Asli of Peninsular Malaysia. Bumiputera constitutes about 69.9% of the total population while the Chinese and Indians constitute about 22.6% and 6.8%, respectively (Department of Statistics Malaysia, 2020). There are many studies that show race and religion as important factors for substance use. Besides, religion plays an important role of protective factor in reducing the risk of substance use (Guo & Metcalfe, 2019; Kulis et al., 2012). Religious adolescents tend to display higher self-control preventing them from using substances (Desmond et al., 2013). The differences of race and ethnicity also influence substance involvement. One study shows that the pattern of alcohol and drug use varied among race and ethnicity (Mckinney & Caetano, 2016; Mericle et al., 2012). In Malaysia, for example, different ethnic groups have different practices, and these include different attitudes particularly towards alcohol. Certain ethnic groups in Malaysian states of Sabah and Sarawak have a culture involving heavy use of alcohol especially during their new year festivals. Of the three main groups, Malays are less likely to consume alcohol than are Chinese and Indians. Additionally, the outcome of substance use also differs among races (Mckinney & Caetano, 2016).

Substance-use disorder among adolescents was also associated with psychiatric comorbidity whereby up to 60% of youths with substance-use disorder had a comorbid diagnosis. One meta-analysis study showed that children diagnosed with Attention Deficit Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder, and depression are at a high risk of developing substance-use disorder in later life (Groenman et al., 2017). Besides, there is a strong relationship between substance abuse and suicide (Yuodelis-Flores & Ries, 2015) and impulsive behaviour (Saleem et al., 2015). The presence of depressive symptoms was also a significant predictor of adolescent substance use (Hussong et al., 2017).

Substance-use disorder in youth is also strongly associated with involvement in the juvenile justice and mental health systems, increasing aggression, and delinquent behaviour (Doran et al., 2012). Up to 45.1% of male young offenders had substance-use disorder (Colins et al., 2010). A study of adolescents in a juvenile detention centre in Malaysia showed that incarcerated boys and girls had a higher

prevalence of substance abuse than did non-incarcerated groups, with the prevalence of up to 69% among boys (Ahmad & Mazlan, 2014). Substance use at an early age is one of the most consistent indicators of continued serious offending at a later age (D'Amico et al., 2008; Mulvey, 2011). Furthermore, Mulvey (2011) found that more serious and chronic adolescent offenders have used more substances. Studies have also shown an association between alcohol use and criminal offence (Fergusson et al., 1996; Prichard & Payne, 2005). Seventy per cent of the young offenders in that study were intoxicated with alcohol at the time of their last offence (Prichard & Payne, 2005). Moreover, young people who abused alcohol was found to be about three times more likely to be involved in violent offences than was the population of those who did not abuse alcohol (Fergusson, Lynskey, & Horwood, 1996).

Another critical factor linked to substance use in adolescents and youth is the family factor (Du et al., 2015; Malkus, 1995; Matejevic et al., 2014; Zamani et al., 2014). The family dynamic factors (cohesion, adaptability, family strengths, family togetherness, parents' marital happiness, and parental drug-and-alcohol use) are significantly related to an adolescent's substance use (Malkus, 1995). Disengaged family functioning, parenting style based on rejection and overprotection, and a significant presence of incomplete family systems were much more dominant for adolescents with substance use (Matejevic et al., 2014). A recent longitudinal study among adolescents in Hong Kong also highlighted parents' vital role in influencing adolescents' substance use. Mother-adolescent relationship was the most significant predictor of adolescent substance use (Shek et al., 2020).

The association of childhood victimisation with later substance abuse has been documented in several previous research (Glassner & Cho, 2018; Moore et al., 2017). It was noted that abused and neglected subjects were about 1.5 times more likely to report using any illicit substance (Spatz Widom et al., 2006). One study showed that people who experienced child sexual and physical abuse in their lives would be involved in illicit substance use and violence in the future. This may be due to the coping mechanism they performed for the experience they had suffered previously (Tyler & Melander, 2015). Emotional regulation and self-restraint could also be impaired owing to the victimisation, which may increase drug use (Sullivan et al., 2007). Those who experienced multiple forms of victimisation or violence had a higher concomitant substance use than did those who experienced only one type of victimisation (Pinchevsky et al., 2014).

In keeping with the multiple factors leading to adolescent substance abuse and dependence, and the need to devise better preventive strategies, our study attempted to determine the association of lifetime substance abuse or dependence with family functioning, childhood victimisation, and depression in juvenile delinquents. We hypothesised that there is an association of a lifetime history of substance abuse and dependence with an unhealthy family functioning, a lifetime history of exposure to victimisation, and depression.

2. Methodology

2.1. Participants

This cross-sectional study was conducted in a juvenile detention centre catering to juvenile detainees under the Malaysian Prison Department. Participants were randomly selected from a list of names provided by that institution. Male detainees between 14 and 17 years old and able to read and understand Malay were included in the study. Consent was obtained from the director of the institution and the participants themselves prior to the study. The sample size was calculated on the basis of Fleiss' equation for cross-sectional studies (Fleiss et al., 1980). The calculated number of expected respondents was 228.

2.2. Procedure

Initially, a site visit was conducted at the school to get an overview of

the respondents. Approval for the study from Malaysian Prison Department was attained after an official request was sent. At the time of the study, the school estimated it had 600 inmates. Based on the inclusion and exclusion criteria, our sampling frame from the numbered list of potential respondents was 400. A simple random sampling was performed by using Statistical Package for the Social Sciences (SPSS) by the International Business Machines (IBM) Corporation, version 22.0, to select the sample size of 230 respondents. During the evaluation session, a group of 10 respondents was called each time prior to being briefed about the study. Subsequently, an interview session for completing the questionnaires was conducted in a designated area inside a hall. During the session, a prison officer was present but stayed at a distance during the interview session. Confidentiality and anonymity with respect to the data were maintained throughout the study period. Ethical approval was obtained from the institutional research ethics committee and the Malaysian Prison Department.

2.3. Instruments

The questionnaires used in the study consisted of a sociodemographic questionnaire, the Family Adaptation and Cohesion Scale (FACES-IV), the Juvenile Victimization Questionnaire Second Revision (JVQ-R2), the Adolescent Alcohol and Drug Involvement Scale (AADIS), and the Mini International Neuropsychiatric Interview for Children and Adolescent (MINI-KID) for the diagnoses of substance abuse, substance dependence, major depressive disorder, and dysthymia. Permission to use and translate all the relevant questionnaires was obtained from the original authors. The Malay translation of the questionnaires were done using the forward and backward translation method involving three physicians and a linguist, all of whom are bilingual in English and Bahasa Malaysia. The process is to produce an accurate translated version of the questionnaire and done while taking into consideration the cultural and conceptual aspect of the translated questionnaire. The translated version was pilot tested prior to being used in this study.

2.4. Demographic data

A brief and self-generated questionnaire was devised to obtain information from the respondents. The demographic variables included the name, age, race, religion, education level, duration of detention, family structure, and family history of substance use.

2.5. Modified MINI-KID

The diagnosis of a lifetime history of substance abuse or dependence, and depression (major depressive disorder and dysthymia) was made by using MINI-KID. MINI-KID is a short structured diagnostic interview used to diagnose common disorders in children and adolescents (Sheehan et al., 2010). Permission was requested from the author to modify the opening question to assess lifetime history (prior to detention). The diagnostic interview was carried out by a trainee psychiatrist who was trained to use the instrument.

2.6. Adolescent Alcohol and Drug Involvement Scale (AADIS)

AADIS is a 14-item self-rated instrument and can be completed in approximately five minutes. The level of involvement of substance use was measured using the scores of AADIS. A score of 0 indicates no alcohol or other drug use; a score between 1 and 36 inclusive indicates the presence of alcohol and/or other drug use but which does not amount to the substance-use disorder diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) while a score of 37 or higher indicates the presence of alcohol and/or other drug use, which warrants full assessment (Moberg, 2003).

A pilot study was conducted with 50 respondents using the Malay translated version for AADIS. The Cronbach's alpha of the Malay

translated version of AADIS was 0.924 which indicates good internal reliability.

2.7. Family Adaptation and Cohesion Scale IV (FACES-IV)

The aspects of family functioning in this study were measured by using FACES-IV, which was conceptualised by using the Circumplex Model. It is a self-rated instrument consisting of 42-items for balanced and unbalanced scales, 10 items of family communication scale, and 10 items of family satisfaction scale. The reliability of FACES-IV is within the range of 0.77–0.89 for all six domains. It also shows high discriminant validity at 0.84–0.99 for all its domains. It comprises three dimensions of family behaviour: cohesion, flexibility, and communication. Cohesion refers to the emotional bonding among family members. Flexibility refers to the amount of change in family leadership and relationship roles and rules. Communication facilitates a family's ability to change its level of cohesion or flexibility. The central hypothesis of the Circumplex Model is that a balanced level of cohesion and flexibility is most conducive to healthy family functioning. The balanced (balanced cohesion, balanced flexibility) and unbalanced scales (disengage, enmesh, rigid, and chaotic) are summarised into a cohesion ratio, flexibility ratio, and total circumplex ratio. The lower the ratio score below one, the more unbalanced the system is. The translated Malay version was used in this study.

Validity and reliability analysis was carried among 50 respondents. Each domain consists of seven items. The Cronbach's alpha of the translated Malay version of FACES-IV was 0.68. The validity analysis of the translated Malay version of FACES-IV noted only one item in its domain with a factor loading of less than 0.4.

2.8. Juvenile Victimization Questionnaire, Second Revision (JVQ-R2), reduced item version

Childhood victimisation was measured by using the JVQ-R2 Reduced Item Version and categorised into five modules: commercial crime, maltreatment, peer and sibling victimisation, witnessing and indirect victimisation. It is categorised according to aggregates of scores from the question items administered to respondents. The reduced version was chosen as it was the briefest and because it has good correlation with the complete JVQ, and the Screener Sum Version of the JVQ, with correlation coefficient of 0.87 and 0.92 respectively (Finkelhor et al., 2011). The reliability analysis of the translated Malay version of JVQ-R2 was done among 50 respondents. The Cronbach's alpha of the translated Malay version of JVQ-R2 was 0.65.

2.9. Statistical analysis

SPSS was used in data analysis. The relationships between the study parameters were analysed by using appropriate statistical tests. The statistical tests used were the independent *t*-test, Mann Whitney *U* test, and chi-square test to compare the lifetime history of substance abuse or dependence. The Kolmogorov-Smirnov test was used to measure normality. Multiple logistic regressions were used to examine the association between the independent variables and lifetime history of substance abuse or dependence, the latter being the dependent variable. The *p*-value for statistical analysis was set at 0.05 level of significance.

3. Results

A total of 232 male respondents were recruited in this study. Two eligible respondents did not participate in the research owing to their refusal to consent (1 respondent) and inability to complete the questionnaires (1 respondent). Thus, the overall response rate was 99.1%, with a final total of 230 respondents recruited for the study.

The respondents' mean age was 16.65 years (SD = +0.68), ranging from 14 to 17 years. The majority were Malays (87.8%, *n* = 202),

followed by Indians (9.6%, $n = 22$), Chinese (1.3%, $n = 3$), and others (1.3%, $n = 3$). More than half of the respondents had a form-1 to form-3 level of education (53.9%, $n = 124$) and stayed in the detention centre for more than six months (67.4%, $n = 155$). Before admission to the centre, most respondents stayed together with both parents (74.8%, $n = 172$), had 2 to 4 siblings (52.2%, $n = 120$), and had no family member with substance abuse (84.8%, $n = 195$).

3.1. Lifetime history of substance use disorder

The prevalence of lifetime substance abuse or dependence was made according to MINI-KID and AADIS (Section A). Assessment from the MINI-KID diagnostic interview gave rise to the diagnosis of lifetime substance abuse or dependence while the assessment by AADIS was made according to the positive response of a lifetime history of ever using the given substance prior to detention. Smoking was assessed by using AADIS (Section A).

For the diagnosis of the lifetime use of alcohol and other drugs, 26.5% ($n = 61$) of the participants had a lifetime history of alcohol-use disorder. More than a quarter (26.5%) ($n = 61$) had alcohol abuse exclusively, while 13.9% ($n = 32$) had alcohol dependence exclusively. Of all the respondents, 67.8% ($n = 156$) had a lifetime history of other drug-use (non-alcohol) disorder, which comprised 67.4% ($n = 155$) abuse only and 55.7% ($n = 128$) had developed dependence. Approximately 73% ($n = 168$) of respondents had a lifetime history of either alcohol- or other drug-use disorder. More than half of respondents had a lifetime history of abusing or dependence on more than two types of substances with 63.0% ($n = 145$) and 53.0% ($n = 122$).

Table 1 shows the percentage of young people who reported any use of a given substance during their lifetime (i.e., according to AADIS (Section A)) before being detained. Among the licit substances, almost all the respondents (98.3%) ($n = 226$) smoked while 46.5% ($n = 107$) of respondents had used alcohol. Among the illicit substances, stimulants and cannabis were among the most frequently used substances, with 55.2% ($n = 127$) and 37.4% ($n = 86$), respectively.

3.2. Descriptive data — Lifetime history of substance-use disorder: Level of involvement

The levels of involvement in alcohol and other drugs were measured by using AADIS. The mean score of respondents for AADIS was 36.47 (SD = 26.13), which ranged from 0 to 104 inclusive. Table 2 depicts the score on the level of involvement of alcohol and other drugs grouped either as 36 and below or as 37 and above. As suggested by Moberg (2003), scores at or below 36 refer to those who have a lifetime history of substance-use but not amounting to substance-use disorder as diagnosed using DSM-IV. Scores at or above 37 indicates presence of lifetime history of substance-use which warrants a full assessment for diagnosis of substance-use disorder (Moberg, 2003). Almost 60% of respondents fell into the group that scored 37 and above ($n = 134$).

Table 1
Lifetime Use of Alcohol, Tobacco, and Other Drugs ($n = 230$).

Substance-use disorder	Frequency (n)	Per cent (%)
Licit substances:		
Tobacco	226	98.3
Alcohol	107	46.5
Inhalants	35	15.2
Illicit substances:		
Cocaine	24	10.4
Amphetamine-type stimulants	127	55.2
Cannabis	86	37.4
Heroin/Opiates	31	13.5
Benzodiazepines	12	5.2
Any Illicit Drug	6	2.6

n: total number.

Table 2
Levels of involvement in alcohol and other drugs according to AADIS.

AADIS score	Mean (SD)	n (%)
≤36	12.40 (15.59)	96 (41.7)
≥37	54.10 (17.69)	134 (58.3)
All respondents	36.47 (26.13)	230 (100.0)

n: total number; SD: standard deviation

Fig. 1 depicts mean AADIS scores based on the lifetime history of a single- or polysubstance use. The total number of single substance abuse and dependence are 22 and 12 whereas for polysubstance abuse and dependence are 145 and 122, respectively. Young people who abused or who were dependent on polysubstance scored slightly higher on AADIS than those who abused or were dependent on single substance only. The mean AADIS score of polysubstance abusers was 49.82 (SD = 19.82), which is higher compared to that of single substance abusers, which was 45.50 (SD = 11.20). Similarly, those with a polysubstance dependence scored higher at 52.01 (SD = 26.60) than did those with a single-substance dependence at 43.67 (SD = 17.73).

3.3. Descriptive data—Family functioning, childhood victimisation, and depression

3.3.1. Family functioning

The respondents' family profiles were described with regards to the balanced scales (cohesion and flexibility), unbalanced scales (disengaged, enmeshed, rigid, and chaotic), family communication, and family satisfaction along with the mean scores as shown in Table 3. Each of the scales was categorised accordingly.

The mean scores of the balanced scales were higher than those of the unbalanced scales among the participants at 25.22 and 20.74, respectively. The mean scores for family communication and family satisfaction were 36.71 (SD = 6.02) and 33.55 (SD = 6.21), respectively. The cohesion ratio [balanced cohesion/(disengaged + enmeshed/2)], flexibility ratio [balanced flexibility/(rigid + chaotic/2)] and total circumplex ratio (cohesion ratio + flexibility ratio/2) exceeded 1 indicating a balanced family functioning for the participants.

3.3.2. Childhood victimisation

JVQ-R2 describes the presence or absence of a particular module or type of victimisation. Almost all (99.6%) respondents had experienced at least one type of victimisation ($n = 229$). The most common type of victimisation was conventional crime, being 98.3% ($n = 226$). This was followed by peer and sibling victimisation at 83% ($n = 191$), witnessing and indirect victimisation at 78.3% ($n = 180$), suspected poly-victimisation at 69.1% ($n = 159$) and child maltreatment at 40.4% ($n = 93$) The least common type of victimisation was sexual victimisation with 24.3% ($n = 56$).

3.3.3. Depression

None of the respondents fulfilled the DSM IV diagnostic criteria for dysthymia, but one respondent had a history of a major depressive episode, and another had a current major depressive episode, which represented 0.9% of the present sample. The participant who had a current major depressive episode was referred to a nearby psychiatric treatment centre.

3.4. Factors associated with lifetime substance use disorder

3.4.1. Demography

Kolmogorov-Smirnov test was used statistically to look for the distribution of the respondents' ages. As the ages of the respondents were not normally distributed, a non-parametric test was used (Mann-Whitney U test). As depicted in Table 4, there was a significant difference between the presence or absence of the lifetime history of substance

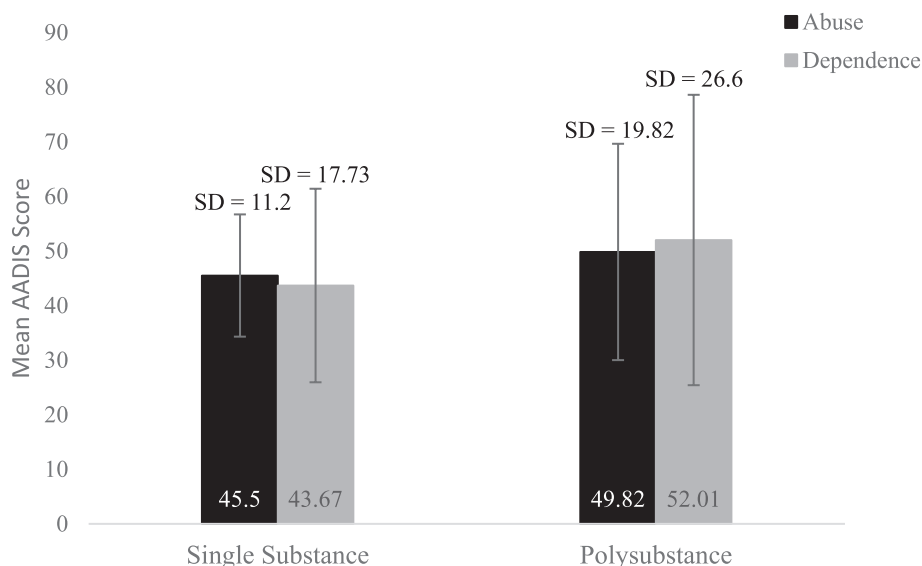


Fig. 1. Mean AADIS score based on single- or polysubstance abuse and dependence.

Table 3
Family profiles of respondents based on FACES IV scores.

Dimensions	Mean (SD)
Balanced scales:	
Balanced Cohesion	24.43 (3.72)
Balanced Flexibility	26.00 (4.26)
Unbalanced scales:	
Disengaged	20.17 (3.67)
Enmeshed	22.65 (3.35)
Rigid	22.65 (3.86)
Chaotic	17.050 (4.21)
Ratio scores:	
Cohesion ratio	1.19 (0.23)
Flexibility ratio	1.32 (0.23)
Total ratio	1.26 (0.21)
Family scales:	
Family communication	36.71 (6.02)
Family satisfaction level	33.55 (6.21)

SD: standard deviation.

abuse or dependence and the respondents' mean age ($p < 0.001$).

The presence or absence of a lifetime history of substance abuse or dependence was significantly associated with race and religion but not with education, duration of detention, family structure, or number of siblings. However, for family history of substance use, there was a significant association with the presence or absence of substance abuse but not with substance dependence.

Table 4
Association of age, race, religion, and family history of substance use with substance abuse and substance dependence.

Factors	Substance Abuse				Substance Dependence			
	Present (n)	Absent (n)	χ^2 (df)	p-Value	Present (n)	Absent (n)	χ^2 (df)	p-Value
Age*	167	63		<0.001	134	96		<0.001
Race	Malay	155	47	14.54 (3)	127	75	15.41 (3)	<0.001
	Chinese	1	2		1	2		
	Indian	10	12		16	6		
	Others	1	2		0	3		
Religion	Islam	156	49	13.31 (3)	127	78	10.92 (3)	<0.01
	Buddhism	1	2		1	2		
	Hindu	9	12		6	15		
	Christian	1	0		0	1		
Family Substance	Yes	18	17	9.31 (1)	16	19	2.67 (1)	0.1
	No	149	46		77	118		

* Mann-Whitney U test; N: total number; χ^2 : chi square; df: degrees of freedom.

3.4.2. Family functioning

The family profiles of young people with or without substance abuse or dependence did not differ significantly.

3.4.3. Childhood victimisation

Table 5 represents the association between the lifetime history of substance abuse or dependence and childhood victimisation. Childhood victimisation is duly categorised according to the respondents' scores on JVQ-R2 and divided into five modules: commercial crime, neglect and maltreatment, peer victimisation, sexual victimisation, and witnessing and indirect victimisation. There is a significant association between peer and sibling victimisation with a lifetime history with substance abuse ($p < 0.001$) and dependence ($p = 0.02$). Meanwhile, there was no significant association of the presence or absence of a lifetime history of substance abuse or dependence with other victimisation modules.

3.4.4. Multiple logistic regression analysis of significant variables

Logistic regression was performed to investigate the relationship among the key variables. As shown in Table 6, age, and history of peer victimisation of the participants were found to be significant predictors of a lifetime history of substance abuse and/or dependence. The respondents have a chance 2.69 and 2.27 times greater to have a lifetime history of substance abuse and dependence per year with an increase in age and with a history of peer victimisation, respectively. Otherwise, the respondents with peer victimisation are 3.95 times more likely to have a lifetime history of substance abuse than are those without peer

Table 5
Association of childhood victimisation with lifetime history of substance abuse and dependence.

Victimisation module	n	Substance abuse		χ^2 (df)	Substance dependence		χ^2 (df)
		Present n (%)	Absent n (%)		Present n (%)	Absent n (%)	
Conventional crime:				1.04 (1)			0.11 (1)
Yes	226	165 (73.0)	61 (27.0)		132 (58.4)	94 (41.6)	
No	4	2 (50.0)	2 (50.0)		2 (50.0)	2 (50.0)	
Maltreatment				0.03 (1)			0.10 (1)
Yes	93	67 (72.0)	26 (28.0)		53 (57.0)	40 (43.0)	
No	137	100 (73.0)	37 (27.0)		81 (59.1)	56 (40.9)	
Peer and sibling victimisation				9.16 (1)**			5.01 (1)*
Yes	191	131 (68.6)	60 (31.4)		105 (55.0)	86 (45.0)	
No	39	36 (92.3)	3 (7.7)		29 (74.4)	10 (25.6)	
Sexual victimisation				0.33 (1)			1.01 (1)
Yes	56	39 (69.6)	17 (30.4)		33 (58.9)	23 (41.1)	
No	174	128 (73.6)	46 (26.4)		101 (58.0)	73 (42.0)	
Witnessing and indirect victimisation				1.40 (1)			0.134 (1)
Yes	180	134 (74.0)	46 (25.6)		106 (58.9)	74 (41.1)	
No	50	33 (66.0)	17 (34.0)		28 (56.0)	22 (44.0)	

*p = 0.02, **p = 0.01, OR = 1.35 (1.08–1.69).
n: total number; χ^2 : chi-square; df: degrees of freedom.

Table 6
Multiple logistic regression for lifetime history of substance abuse and dependence.

Variables	B	SE	P-value	Odds Ratio	95% Confident Interval
Substance abuse:					
Age	0.98	0.24	<0.001	2.69	1.68, 4.29
Peer victimisation	1.37	0.65	0.03	3.95	1.11, 14.03
Substance dependence:					
Age	0.82	0.23	<0.001	2.27	1.44, 3.61
Peer victimisation	0.65	0.42	0.13	1.91	0.84, 4.36

B: beta; SE: standard error.

victimisation.

4. Discussion

This study investigated the association of lifetime substance abuse or dependence and childhood victimisation with family functioning and depression among adolescent respondents in a Malaysian juvenile detention centre.

Our study shows that most of the respondents were Malays (87.8%) and had secondary level education (82.8%). The prevalence is aligned with the data provided by the Department of Social Welfare Statistics Report of Malaysia in cases concerning youth offenders by ethnic group and gender in 2016 that showed that 74.08% involved the Malay ethnic group, and that most of them were male offenders (Department of Social Welfare, 2016).

A high prevalence of lifetime history of substance-use disorder among adolescents in juvenile detention centres ranging from 45.1% to 69% have also been documented previously (Ahmad & Mazlan, 2014; Fauziah et al., 2012; Teplin et al., 2002). Comparatively, 73.0% of respondents in this study had a lifetime history of substance abuse or dependence (72.6% abuse only, 58.3% had dependence). These variations in the rates of substance-use disorder across studies could have been attributed to differences in the criteria used to define substance-use disorder, the setting (Chassin, 2008), and types of instruments used (diagnostic questionnaire versus screening questionnaire, or self-generated questionnaire) (Ahmad & Mazlan, 2014; Fauziah et al., 2012; Teplin et al., 2002). The present study follows the diagnosis of substance-use disorder in accordance with DSM-IV as there is a clearer separation between substance abuse and dependence, compared to that outlined in DSM-5 where it combines both substance abuse and

substance dependence under the substance-use disorder diagnosis. Additionally, the cut-off point in AADIS used in this study also follows the diagnosis of substance-use disorder from DSM-IV. Thus, this differentiation helps to streamline specific treatment to those who abuse substances or those who are substance dependent.

The present study has demonstrated a very high prevalence of a lifetime history of cigarette smoking (98%) followed by the use of amphetamine (55.2%), alcohol (46.5%), and cannabis (37.4%). The high rate of use of amphetamine-type stimulants, alcohol, and cannabis, after tobacco, is also in keeping with the trend of data presented by the Malaysian National Anti-Drug Agency from the year 2014 until 2019 (National Anti-Drugs Agency, 2020). The significant increase in use of crystalline methamphetamine and other amphetamine type-stimulants from 2014 to 2019 reveals the substance as a serious public-health and law-enforcement threat in the country. Multiple health issues may arise from the use of amphetamine-type stimulants (Topcu et al., 2018; Yusof & Wahab, 2015), hence needing proper management and intervention plan to curb its use.

The prevalence of drug use may also differ according to ethnicity and religious values. For instance, one global statistics study (Peacock et al., 2018) showed that European regions have higher alcohol consumption and a high percentage of heavy consumption compared to North Africa and the Middle East, which have the lowest alcohol consumption. For tobacco use, European regions and Southeast Asia recorded significantly higher prevalence while the Middle East and African countries have a lower daily tobacco smoking rate. Illicit drug use dependence is prevalent in developed and high-income countries, including countries in North America, Europe, and Australia but is uncommon in underdeveloped countries, particularly in the African regions. Generally, countries with strong religiosity in the Middle East region have low substance use, most prominently alcohol consumption.

A significant association between the lifetime history of substance and religion was also documented in the present study. Strong religiosity is associated with a lower rate of substance use owing to the conservative attitude toward substance use and better psychological well-being (Ford & Hill, 2012). According to Islamic law, alcohol is strictly prohibited, and countries with a Muslim majority tend to have controlling policies with respect to alcohol (Amin-Esmaeili et al., 2017). The global statistics of substance use are also supported by the study showing a high prevalence of lifetime abstinence from alcohol among countries with large Muslim populations (Probst et al., 2017). Other than the religion/religiosity factor, ethnicity may also play a role in determining the risks involved in substance use. The findings of our study are aligned with those of several previous studies that revealed a significant relationship

between race/ethnicity and substance use (Harrell & Broman, 2009; McCabe et al., 2007; Vaughn et al., 2018; Wallace et al., 2002).

Almost all the participants in the present study had always smoked or used nicotine. The high prevalence of cigarette (including e-cigarette) smoking in adolescents and youth poses problems in developing countries worldwide (Badayai et al., 2020). The use of licit substances, such as tobacco and alcohol, which often precedes the use of other illicit substances, can be explained by the gateway hypothesis. This hypothesis proposes that the involvement in drug use occurs in stages, starting from the use of licit substances, such as tobacco and alcohol, to the use of other illegal drugs (Degenhardt et al., 2010; Kandel, 2002; Wagner & Anthony, 2002). A recent study found that over time, the transition from the status of a mild and single-substance user will typically move to a more severe and multiple-substance-use status (Choi et al., 2017).

Previous research has documented more problematic and less healthy family functioning among adolescents who were admitted to residential substance-use treatment (Mermelstein, 2011). Family cohesion level was also noted to have a significant association with substance-use severity (Mermelstein 2011). Our study, however, shows slightly different findings. Most adolescents in our study had been staying with their biological parents before the former were admitted to the detention centre. There was no history of substance use in their family, and the level of family cohesion and flexibility as identified by using FACES-IV questionnaire was moderately balanced. Nevertheless, for two of the unbalanced scales (item enmeshed and rigid), the score was moderately high in the participant's family. Family communication was notably moderate, but the adolescents felt less satisfied with their family in several areas assessed, such as the family's ability to cope with stress, share a positive experience, resolve conflicts and deal fairly with criticism in the family. Briefly, despite the respondents' high rate of substance use and apart from their low satisfaction with their family, they notably come from a moderately stable family background, hence an indication of the possible role of other important factors leading to their drug use.

The prevalence of childhood victimisation ranges from 30% to 93% and varies according to the types of victimisation studied and the questionnaires used (Choo et al., 2011; Finkelhor et al., 2010; Smith & Saldana, 2013). In a national telephone survey in 2003, Finkelhor et al. (2010) reported the prevalence of any peer or sibling victimisation and any physical assault at 58.8% and 53.1%, respectively. Meanwhile, Smith and Saldana (2013) noted that 93% of girls reported having experienced sexual abuse; 93% of girls had experienced physical abuse, and 90% of girls had been exposed to at least one additional childhood trauma. With respect to victimisation experienced by adolescents, our study reported a very high rate (99.6%). This finding is consistent with that of a study done among secondary school students in Selangor, Malaysia, which looked into the lifetime prevalence of multiple types of adverse victimisation experiences (Choo et al., 2011). Most participants in the study experienced at least one type of victimisation, and about a quarter of them experienced more than one type of victimisation. In the present study, the highest percentage of victimisation was due to conventional crime (prior experience of robbery and assault with or without weapons), followed by peer and sibling victimisation, and witnessing and indirect victimisation. It should be noted that lifetime exposure to violence and victimisation was associated with substance use resulting in violent behaviour and aggression (Sommer et al., 2017).

In previous studies, the prevalence of depression among juvenile detainees ranged from 11% to 17.2% (Abram et al., 2003; Colins et al., 2010). The finding is in contrast with that of a local study conducted among delinquent adolescents, which showed a rate of depression that was notably higher (52.7%) (Ghazali et al., 2018). The present study however, could not capture a similar prevalence of depression among those in the juvenile detention. A possible explanation could be that the study only took into account the diagnosis of major depressive episodes or dysthymia. Another explanation could be that the present study only included male detainees, who, in comparison to females, had a lower

prevalence of mood disorders (Abram et al., 2003; Ryan & Redding, 2004).

Our final analysis using logistic regression reveals age and history of peer and/or sibling victimisation as significant predictors of the lifetime history of substance use. With an increase in adolescent age (per year), there is a notable increase in the chance of having a lifetime history of substance use or dependence. This finding is supported by a study among adolescents from the 6th to 12th grade that showed an increasing substance-use rate from a lower to a higher grade (McDermott et al., 2013). The present study also reveals that respondents with a history of peer and sibling victimisation are about four times more likely to have a lifetime history of substance abuse than are those without such a history. Peer victimisation (also defined as non-sexual aggressive behaviour) can take the form of physical, verbal, or relational exclusion inflicted on the victim by their peers (Mynard & Joseph, 2000). Several studies have documented a significant association between childhood victimisation and substance abuse (Kennedy et al., 2016; Thompson et al., 2015; Tyler & Melander, 2015). The positive association was described according to the type of victimisation and the kind of substance use. Substance-use disorder was associated with childhood sexual abuse (Molnar et al., 2001; Smith & Saldana, 2013), physical abuse (Lo & Cheng, 2007; Sullivan et al., 2006) and peer victimisation (Sullivan et al., 2006). Alcohol abuse was associated with peer victimisation and physical abuse (Sullivan et al., 2006).

To summarise, the hypotheses of this study were partially confirmed where only peer/sibling victimisation showed a correlation with lifetime history of substance abuse. However, a correlation between unbalanced family functioning and depression with substance abuse and dependence was not found. This may be because of the background of the respondents in the samples: Most were from a stable family, and a particularly low number of them were diagnosed with depression.

4.1. Limitations and recommendations

Our study has several limitations which should be taken into account when interpreting our findings. The study was confined to one juvenile detention centre in Malaysia and only included male adolescents. This selection limits the ability of this study to represent the general population of Malaysia. In this cross-sectional study, conclusions should also be drawn cautiously regarding the direction of causality. A better option would be to conduct longitudinal and prospective research to investigate any causal relationship, onset, and course of the variables studied. It is also noteworthy that the respondents were detained for offenses of varying degrees, which may also impact the study outcome.

4.2. Clinical implications

The high rate of lifetime substance abuse/dependence in the juvenile offenders' population warrants a carefully planned intervention to address the issue. Psychoeducation for all offenders regarding the implications of substance use, including smoking, is essential to prevent further use after their release from the centre. The high rate of lifetime Amphetamine-Type Stimulants (ATS) use and smoking in the participants warrants a particular focus on educating them regarding the negative consequences of using the substance. This objective should be integrated into the juveniles' education module while they are detained in the centre.

Peer/sibling victimisation in adolescents should also be taken seriously and managed accordingly by all. Parents and teachers have a special role in supporting the victimised adolescents to manage the trauma they experience and teach them about using more healthy coping techniques instead of resorting to self-medicating through substance use. Otherwise, it is also crucial to ensure that all adolescents in any correctional institution do not suffer from any form of victimisation as this will occasion a greater negative impact on their lives.

As highlighted in this study, a good and balanced family function

does not always guarantee ‘stability’ in the adolescents’ well-being. Multiple factors may contribute to determining the well-being of children and adolescents. One example is the contribution of peer factors, which should always be entertained and addressed by parents.

Relevant organisations and agencies must also be more proactive with respect to preparing and supporting the juveniles upon their release to the community. The aims and objectives in educating adolescents during their detention should not only follow the standard education modules strictly but should also incorporate education tailored to their specific needs and problems, such as managing substance use and victimisation. There should also be a system to monitor and follow up continuously on these adolescents upon their release to ensure their well-being and prevent further risky behaviours.

4.3. Conclusion

The high rate of lifetime substance use and dependence indicates the dire need to focus on substance-use intervention and relapse prevention in juvenile offenders. Otherwise, the effect of victimisation, particularly peer victimisation should be properly addressed and managed to prevent future risky behaviours in adolescents.

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CRediT authorship contribution statement

Suzaily Wahab: Conceptualization, Writing - original draft, Writing - review & editing, Project administration. **Muhammad Adib Baharom:** Writing - original draft, Investigation, Formal analysis, Project administration. **Fairuz Nazri Abd Rahman:** Conceptualization, Writing - original draft, Writing - review & editing. **Khairuddin A. Wahab:** Resources, Writing - review & editing. **Muhamad Afiq Zulkifly:** Resources, Visualization. **Amirul Danial Azmi:** Formal analysis, Resources, Writing - review & editing. **Norfazilah Ahmad:** Methodology, Formal analysis, Data curation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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