ORIGINAL ARTICLE

Prevalence and Factors Associated with Alcohol Use among Dayak Adolescents in Sarawak, Malaysia

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ABSTRACT

Introduction: Alcohol is classified as a psychoactive substance, and its dependence is one of the three leading risk factors for death, disability, or disease. Early age alcohol use by the age of 15 is implied to be harmful due to interference in the brain development of adolescents, causing alcohol-related problems later in life. This study aims to determine the prevalence and factors associated with alcohol use among Dayak adolescents in Sarawak, Malaysia. **Methods:** This was a cross-sectional quantitative research approach. A total of 12 districts within the 12 divisions were selected by multistage stratified cluster sampling. Dayak housing area lists were obtained from district offices and the local councils. The respondents were selected systematically according to male and female respondent houses, and they were interviewed using an interviewer-administered questionnaire. Data were entered into Microsoft Excel and analysed through IBM SPSS Version 27.0. **Results:** Dayak adolescents' mean age was 17.31 years. They were either low-risk (50.0 %), hazardous (31.0%), abstainers (11.0%), harmful (5.0%) or alcohol dependant (3.0%) drinkers. Age (p<.001), gender (p<.05), ethnicity (p<.001), religion (p<.05), employment (p<.001), level of education (p<.01), allowance (p<.001), family relationship (p<.05), and family size (p<.05) were the potential predictors of alcohol use disorder. **Conclusion:** Dayak adolescent alcohol drinking is prevalent and a public health problem, particularly among disadvantaged socio-economic families. The lower proportion of abstainers suggested that alcohol use among adolescents is on the rise. Hence, the results should be utilised to do targeted health promotion regarding harmful alcohol use among adolescents since early use of alcohol among adolescents may lead to more severe health and non-health outcomes in the future.
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Keywords: Alcohol, Dayak, Adolescents, Abstainer, Dependant

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INTRODUCTION

Alcohol, commonly known as ethanol or ethyl alcohol, is a psychoactive drug that consists of an organic compound containing hydroxyl (-OH) and carbon atoms, with ethanol being the psychoactive component (1). It is produced through fermentation and distillation processes and is widely used as an active ingredient in beverages such as wine, beer, and hard liquor (2). Alcohol crosses the blood-brain barrier to act in the neurochemistry pathway producing changes in the function of neurotransmitters, enzymes, and receptors leading to deranged synapses that regulate compulsivity and inhibition (3). Due to the pathogenicity of alcohol in the brain, prolonged use will lead to tolerance or withdrawal effects (4). Effects of alcohol differ from person to person, depending on the person's risk factors such as pre-existing health conditions, other substance

abuse, and the level of consumption (5). Alcohol use disorder was previously known as alcoholism or alcohol dependence. The term describes alcohol consumption that led to mental or physical health problems (6). The diagnosis follows the criteria mentioned in the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5) (7). Symptoms include being unable to limit drinking, persistent drinking despite having problems personally or professionally, needing a larger amount of alcohol to get similar effects, and frequent intoxications (4).

Current drinkers were those who had drunk any alcoholic drink in the previous 12 months, whereas binge drinkers were those who had six or more standard alcoholic beverages in one sitting (8). More than half of the people in the Americas, Europe, and the Western Pacific consume alcohol, making up a substantial portion of the world's 2.3 billion alcohol drinkers. On the other hand, while per capita alcohol consumption remained stable in most parts of the world, it surged in the Western Pacific and Southeast Asia regions. More than a quarter of current drinkers are adolescents aged

15 to 19, accounting for more than 150 million people (9). Malaysians consume more alcohol per capita than any other country, rising from 0.8 litres per year in 2005 to 1.2 litres in 2010 and 1.7 litres in 2015. However, the country had a lower prevalence of alcohol use than other countries in the Western Pacific Region. According to the National Health Morbidity Survey 2015, one-tenth of Malaysian adults consume alcohol regularly. Compared to younger age drinkers, the incidence of current drinkers among older adults has decreased by about half from 2006 to 2015 (10).

According to the latest adolescent health survey, the bulk of former drinkers in Sarawak and current drinkers' prevalence almost doubled the national prevalence. The majority of the adolescents had their first drink at an age below 13 years old, and Sarawak contributed most of the statistics (11). Sarawak was among the states with the highest number of current drinkers in Malaysia, with almost one-fifth of the population or half a million drinkers being Sarawakians (11). On the other hand, there were more current drinkers in urban areas compared to rural areas, males, and those with higher education (11). The prevalence of alcohol consumption among 'Bumiputras' in 2015 was the highest in the country. Furthermore, the prevalence of binge drinkers among 'Bumiputras' reached up to almost three quarter. Although the prevalence shows a reduction from the previous survey in 2011, there was an increase in the prevalence of binge drinking among current drinkers and adolescents (10).

Alcohol abuse is thought to inflict more harm at a young age since it interferes with adolescents' brain growth period. This effect could lead to alcohol-related difficulties later in life, particularly for those who began drinking before or by 15. Apart from medical issues, the issues include dependence and chronic heavy alcohol consumption practices (12). Because these individuals are more likely to become high-risk alcohol drinkers, identifying the high-risk group is crucial for a better, more realistic intervention. Few studies have indicated that socio-demographic variables, including age, gender, and socio-economic status, are associated with drinking problems. Their findings have been useful in directing focused interventions in specific communities like Dayak communities (13).

Heavy alcohol consumption leads to not only medical but non-medical effects as well (14). This includes social problems such as crime and suicide (15). Therefore, educating the adolescents and the community regarding alcohol-related negative effects, apart from addressing the associated risks of alcohol consumption would help encourage them to avoid alcohol consumption, ultimately negating the medical and non-medical harms. Studies concerning alcohol and factors associated with its consumption among adolescents are few in Malaysia (16, 17) and one in Sabah (18). This might be attributed

in part to current policies restricting adolescent alcohol use and the issue's sensitivity to the Malay race and the Muslim population (19). The lack of research could potentially cause difficulty in recognizing problematic drinking among the young age groups. On the other hand, understanding the cultural context and different demographics might help to influence and improve the pre-existing guidelines regarding alcohol in Malaysia. This study aims to determine the prevalence of alcohol consumption among Dayak adolescents and the factors influencing their alcohol consumption in Sarawak.
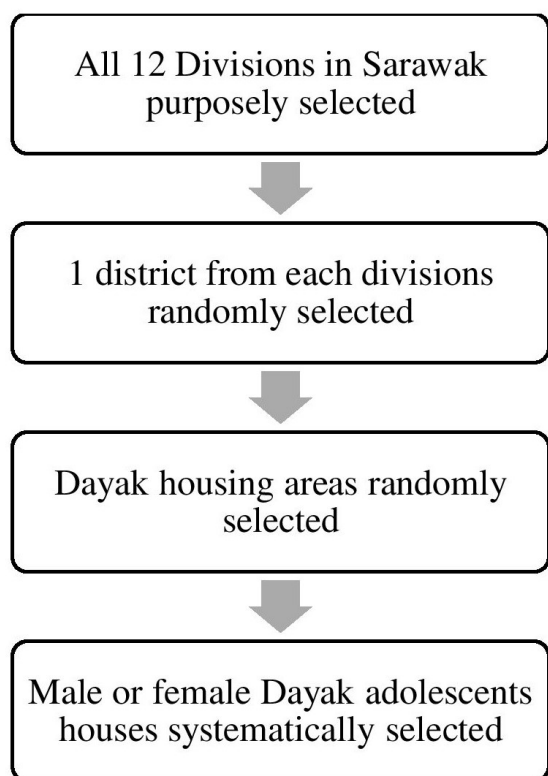
MATERIALS AND METHODS

Study settings and population
This is a cross-sectional study designed to collect data on the prevalence of alcohol consumption among Dayak adolescents in Sarawak. The study population includes Dayak adolescents aged 10-19 years old in the state. The Dayak adolescents who have lived in the region for at least six months and have no history of mental retardation, physical impairment, or chronic disease were included in the study. Non-Malaysian citizens and individuals who refused to engage in the research were excluded. The indigenous inhabitants of Borneo's island (Kalimantan), which includes Sarawak, constitute most of the island's ethnic groupings. Ibans, Bidayuhs, Kenyans, Kayans, Orang Ulu, and other sub-tribes make up the Dayak community. The Dayak ethnicity may be categorized based on cultural or linguistic similarities (20). The sample population size estimation was done using the precision-based approach single proportion formula (21), where the base population proportion of adolescents in Sarawak were current drinkers of 19% (11) with the standard critical value of 1.96 and 5% absolute precision (22). A total of 12 districts within the 12 divisions were selected by multistage stratified cluster sampling. The list of all the Dayak housing areas, villages, and longhouses in the involved districts was obtained from district offices and or the local council. The number of housing areas, villages, and longhouses was randomly selected depending on the number of respondents required from the specific district, which was already calculated based on the proportion of adolescents available in the district. Then, the respondents were randomly selected according to male and female respondent houses. In the male respondent houses, only male adolescents would be approached, similarly, with female respondent houses, only female adolescents would be approached (Fig. 1 Sampling framework).

Data collection
We collected data through face-to-face interviews using an interviewer-administered questionnaire. The questionnaire consisted of 5 parts using the national language Bahasa Melayu. Before data collection, we briefed the respondents with a brief introduction and explanation. Informed and written consent was

Figure 1: Sampling strategy

The flowchart shows, from top to bottom:

All 12 Divisions in Sarawak purposely selected

↓

1 district from each divisions randomly selected

↓

Dayak housing areas randomly selected

↓

Male or female Dayak adolescents houses systematically selected

taken from the respondents before the interview. A pilot test of the questionnaire was conducted with 30 respondents among non-sample families to examine the quality of the questions in terms of logical sequencing, understandability, and average time to complete the interview. All of the questions in the interview were comprehensive and could be answered in a reasonable amount of time. There was a solid flow and order to the questions, and no sensitive issues were included. The questionnaire is reliable with Cronbach alpha values of more than 0.90 and valid in a local situation.

Measurements
Characteristics of the respondents include respondent age, education, occupation, marital status, education status, ethnicity, and religion. In contrast, parental characteristics include age, gender, monthly household income, relationship with spouse and children, and family characteristics.

Survey questionnaires were measured using Alcohol Use Disorder Identification Test (AUDIT) questionnaire (23). It consists of 10 items measuring alcohol, potential dependence on alcohol, and experience of alcohol-related harm. It is suitable for screening in primary care, other healthcare settings, and epidemiological studies. Its reliability and validity have been established in various settings and nations (23-25). The Dayak adolescents' alcohol consumption was classified based on the AUDIT score as no risk (0), low-risk (1-7), hazardous (8-15), harmful (16-19), and dependence (more than 20) based on the WHO classification (25).

Data entry and data analysis
We manually checked and verified the completeness of the data. Incomplete data were discarded before being entered into Microsoft Excel 2010. The IBM SPSS (Statistical Package for Social Sciences) version 27 was used for analysis (26) and was presented in frequency, percentage, mean, median, and standard deviation for descriptive statistics. The multivariate analysis was conducted to assess the dependent and independent variables' relationship. Alcohol use disorder was the dependent variable, whereas age, gender, ethnicity, religion, occupation, education level, amount of pocket money received, household income, parental relationship, parent-child relationship, and family size were considered independent variables. Before multivariate analysis, bivariate analysis was done to identify the significant variables related to the dependent variable. However, the multicollinear independent variables were removed from the final analysis. After controlling the other variables, both unadjusted and adjusted odds ratios were reported to determine the impact of specific independent variables on the dependent variable.

RESULTS

Characteristics of the respondents
The mean adolescent age (SD) was 17.31 (1.4) years. Two-thirds of the adolescents were Ibans (67.9%), followed by Bidayuh (14.6%), other ethnic groups, which include Kayan, Punan, Ngaju (11.6%), and Orang Ulu (5.9%). Most adolescents were students (77.7%), others (19.1%), and unemployed or homemakers. More than half the adolescents had at least a secondary school education (64.5%), followed by pre-university (25.6%), with only a fraction with no formal education (0.7%). Finally, most adolescents had at least MYR 1 to MYR 50 (USD 0.23 to USD 11.60) of daily allowance (60.9%), followed by no allowance (37.7%) (Table I).

Characteristics of the parents and family
The mean ages (SD) of the fathers and mothers were 49.18(8.9) and 45.80 (8.3) years, respectively. More than half of the parents had secondary school education (father 57.8%, mother 56.3%) followed by primary school education (father 20.9%, mother 25.4%) and others (father 11.7%, mother 11.1%). More than half of the fathers were employed (56.8%), followed by self-employed (33.7%), and only a few of them were not working (2.4%). However, two-thirds (62.6%) of the mothers were not working, compared to employed (24.7%) and self-employed (11.3%). The median household income was MYR 1600 (USD 370). More than half of the parents had an excellent relationship (61.6%), while a similar relationship was between parents and children (61.5%). The median family size was 6. One-quarter of the respondents were either the eldest or the youngest, with less than one-tenth as the only child in the family (9.8%) (Table II).

Table I: Characteristics of the respondents (N=1510)

Characteristics	N	%	Statistics
Age in years			
≤ 14	50	3.3	Mean (SD) = 17.30 (1.44)
15-19	1460	96.7	Min=11, Max= 19
Gender			
Girl	656	43.4	
Boy	854	56.6	
Ethnicity			
Iban	1026	67.9	
Bidayuh	220	14.6	
Orang Ulu	89	5.9	
§Others	175	11.6	
Religion			
Islam	87	5.8	
Christian	1385	91.7	
Buddhist	31	2.1	
¥Others	7	0.4	
Marital status			
Single	1374	91.0	
Married	91	6.0	
€Others	45	3.0	
Occupation			
Student	1174	77.7	
Unemployed	42	2.8	
Housewife	5	0.3	
ξOthers	289	19.2	
Education level			
No formal education	10	0.7	
Kindergarten	3	0.2	
Primary school	47	3.1	
Secondary school	974	64.5	
Pre-university	386	25.6	
Vocational school	6	0.4	
ψOthers	84	5.5	
Position among siblings			
Only child	110	7.3	
Eldest	428	28.3	
Youngest	423	28.0	
Others	549	36.4	
Daily allowance (MYR) ∞			
≤ 0	570	37.7	
1-50	920	60.9	Mean (SD) = 15.94 (11.84)
51-100	11	0.7	Median=5.00
>100	2	0.7	

§others include Kayan, Punan, Ngaju, etc. ¥others include Bahai, Animism, etc
€others include separated, divorced, etc. ξothers includes employed, self-employed, etc
ψothers includes Diploma, Certificate, etc
SD=Standard Deviation
∞ Measured in Malaysian Ringgit (MYR). MYR 1 is equivalent to USD 0.23

Table II: Characteristics of the parents and families of the respondents (N=1510)

Characteristics	N	%	Characteristics	N	%
Age of father			**Household income (MYR) ∞**		
≤ 30	21	1.4	< RM 500	156	10.3
31 – 40	161	10.7	RM 501 – 1000	376	24.9
41 – 50	673	44.6	RM 1001 – 1500	255	16.9
51-60	565	37.4	RM 1501 – 2000	216	14.3
> 60	90	5.9	> RM 2000	507	33.6
Mean (SD)	49.18 (8.89)		Mean (SD)	1429.47 (1005.25)	
Min, Max	30, 74		Median	1750.00	
Age of mother			**Monthly expenditure (MYR) ∞**		
≤ 30	15	1.0	< RM 500	486	32.2
31 – 40	373	24.7	RM 501 – 1000	468	31.0
41 – 50	738	48.9	RM 1001 – 1500	282	18.7
51-60	351	23.2	RM 1501 – 2000	154	10.2
> 60	33	2.2	> RM 2000	120	7.9
Mean (SD)	45.80 (8.26)		Mean (SD)	903.64 (728.74)	
Min, Max	31, 66		Median	250.00	
Education of father			**Total family members**		
Diploma and above	145	9.6	≤ 5	708	46.9
Secondary school	873	57.8	6- 10	762	50.5
Primary school	315	20.9	11- 15	28	1.9
¥Others	177	11.7	> 15	12	0.7
Education of mother			Mean (SD)	5.90 (2.04)	
Diploma and above	109	7.2	Min, Max	3, 20	
Secondary school	850	56.3			
Primary school	383	25.4	**Total siblings**		
¥Others	168	11.1	1-5	1321	87.5
Occupation of father			>5	189	12.5
Employee	858	56.8	Mean (SD)	3.80 (1.53)	
Self-employed	509	33.7	Min, Max	0, 10	
Pensioner	92	6.1	**Father-mother relationship**		
Not working	51	3.4	Excellent	930	61.6
Occupation of mother			Good	447	29.6
Employee	373	24.7	Average	70	4.6
Self-employed	170	11.3	Poor	16	1.1
Pensioner	13	0.9	Does not apply	47	3.1
Not working	954	63.1	**Parents-child relationship**		
Family unit			Excellent	928	61.5
Nuclear family	1333	88.3	Good	472	31.3
Single parent family	69	4.6	Average	85	5.6
Stepfamily	14	0.9	Poor	8	0.5
Living with guardian	56	3.7	Does not apply	17	1.1
ψOthers	38	2.5			

¥others include no formal education, pre-school, etc. ψ others include living alone, living with friends, etc.
£ others include second, third, etc. ξ others include whiskey, sake, tequila, etc.
∞ Measured in Malaysian Ringgit (MYR). MYR 1 is equivalent to USD 0.23
SD=Standard Deviation

Prevalence of alcohol use disorder

Half of the Dayak adolescents were low-risk alcohol consumers (50.0%), while one-quarter were hazardous alcohol users (31.0%). One-tenth of the adolescents were abstainers (11.0%), and only a minority were either harmful alcohol users (5.0%) or alcohol dependent (3.0%) (Fig. 2). Most of the adolescents consumed beer (72.4%), followed by Tuak beras (45.0%), Wine (31.3%), Langkau (29.2%), and Brandy (23.6%). Only slightly more than one-tenth consumed Ijuk (13.2%) and other types of alcoholic beverages (14.3%).
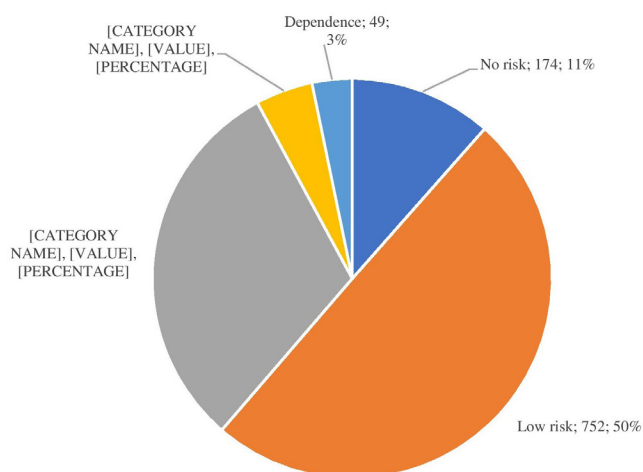

Figure 2: Prevalence of alcohol use disorder

Predictors of alcohol use disorder: Multinomial logistic regression analysis

Multinomial logistic regression was performed to create a model of the relationship between the predictor variables (socio-demographic characteristics) and alcohol use disorder among the Dayak adolescents (low-risk, hazardous, and harmful dependence). The fit between the model containing only the intercept and data improved with the addition of the predictor variables, χ^2(2904, N= 1510) = 2285.58, Nagelkerke R^2 = 0.298, p < .001. Based on the final model fitting, correction classification rates were 83.6% for low-risk, 26.5% for hazardous, and 5.0% for harmful dependence; the overall correct classification rate was 54.6%. The analysis revealed that age, gender, ethnicity, religion, occupation, education level, pocket money (MYR), father-mother relationship, parent-child relationship, and family size appeared to be potential predictors of alcohol use disorder among the Dayak adolescents. This indicated that the younger the adolescents were, they were 8% less likely to be low-risk drinkers (AOR = 0.079, p<.001) compared to older adolescents. The gender of the adolescents appeared to be an important predictor of hazardous alcohol use, with male Dayak adolescents being 1.693 times more likely to be hazardous drinkers (AOR = 1.693, p<.05) compared to female Dayak adolescents. Analysis indicated that Iban adolescents were 2.932 times more likely to be hazardous drinkers (AOR = 2.932, p<.001) than other Dayak ethnicities. On the other hand, Christian Dayak

adolescents were 7.170 times more likely to be harmful-dependant drinkers (AOR = 7.170, p<.05) compared to other religions. The Dayak adolescents who are students were 36% less likely to be harmful-dependant drinkers (AOR = 0.363, p<.05) compared to other occupations, while those with no pocket money were 2.221 times more likely to be harmful-dependant drinkers (AOR = 2.221, p<.05). The Dayak adolescents whose parents had a good relationship were 3.418 times more likely to be harmful-dependant drinkers (AOR = 3.418, p<.05) compared to other parental relationship statuses. In contrast, those whose parents had a good relationship were 46% less likely to be low-risk drinkers (AOR = 0.458, p<.05) than other parent-child relationship statuses. The Dayak adolescents with total family members of seven to eight were 3.259 times more likely to be hazardous drinkers (AOR = 3.259, p<.01). However, no statistically significant association was found between the household income and alcohol use disorder (Table III).

DISCUSSION

The aim of the research was to determine the prevalence of alcohol drinking among Dayak adolescents in Sarawak, as well as the variables that influence their use. Male, older Dayak adolescents with a poor socio-economic background, such as unemployment, inadequate education, a lack of pocket money, and many family members, were more likely to use alcohol. The finding of our study indicated that older adolescents were more likely to consume alcohol, which coincides with the results in Australia that might be due to the tendency of older adolescents to be attracted to and explore pleasure-giving substances such as alcohol (27). On the other hand, the high likelihood of Dayak adolescents with more family members becoming hazardous drinkers could be explained by the higher likelihood of exposure to more family members who were drinking (28). The higher proportion of drinkers was among Iban ethnicity as compared to other Dayak people, which is identical to the research done in the rural area of Kapit (29). The lack of Muslim drinkers could be due to the strict Sharia rule prohibiting them from obtaining alcohol (30). However, further studies are needed to know whether the Muslims who drank, when compared to other religions, are more likely to indulge in hazardous or low-risk drinking. The high preponderance of Dayak male adolescents that have alcohol use disorder could be explained by the developmental-related neurobiological vulnerability driven by the externalizing phenotype for risk of alcohol drinking. The male gender role stereotypes alcohol drinking (31).

The Iban, Bidayuh, and Orang Ulu are Dayaks who have a traditional drinking culture that includes Tuak beras (rice wine), Langkau (rice spirits), and Ijuk. Muslim Dayaks, on the other hand, are prohibited

Table III: Predictors of alcohol use disorder: Multinomial logistic regression analysis

Variables	Low risk				Hazardous				Harmful dependence			
	UAOR	AOR	LL	UL	UAOR	AOR	LL	UL	UAOR	AOR	LL	UL
Age in years												
≤ 14	.098***	.079***	.055	.173	.055***	.050***	.024	.125	.061***	.035***	.014	.259
15-19	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Gender												
Male	1.018	1.161	.726	1.426	1.552*	1.693*	1.089	2.213	1.533	1.670	.957	2.455
Female	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Ethnicity												
Iban	4.557***	2.628***	3.126	6.642	4.647***	2.932***	3.090	6.989	2.427***	1.434	1.419	4.151
Bidayuh	8.673***	3.581**	4.472	16.822	5.469***	2.384*	2.697	11.091	3.704***	1.807	1.555	8.824
Others (Orang Ulu, Kayan etc)	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Religion												
Islam	.774	.574	.319	1.877	1.250	.854	.439	3.558	.833	.729	.138	5.047
Christian	6.202***	2.541*	2.921	13.170	7.613***	3.329*	3.036	19.088	6.890*	7.170*	1.542	30.798
Buddhist and others	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Occupation												
Student	.283***	.246***	.153	.522	.250***	.226***	.134	.468	.349**	.363*	.163	.747
Unemployed	.191*	.286	.052	.701	.670	.926	.198	2.266	1.050	.944	.253	4.352
Self-employed	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Education level												
No or primary	.161**	1.116	.041	.631	.132**	.742	.032	.549	.175*	.919	.038	.807
Secondary school	.239*	.305	.073	.781	.233*	.248*	.070	.779	.110**	.107**	.031	.397
Pre-university	.559	.491	.162	1.927	.477	.367	.135	1.687	.0223*	.146*	.057	.866
Others	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Pocket money (MYR)∞												
0	1.825**	2.162**	1.164	2.861	1.619*	2.034*	1.020	2.570	1.969*	2.221*	1.102	3.518
1-4	.457**	.891	.273	.763	.321***	.724	.183	.563	.129***	.212*	.042	.395
5-9	3.682***	3.718***	2.224	6.098	1.895*	2.087*	1.119	3.208	.742	.799	.344	1.601
≥10	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Household income (MYR)∞												
<500	1.321	2.045	.676	2.584	1.718	2.217	.853	3.460	2.660*	2.797	1.078	6.563
501 – 1000	1.116	1.223	.697	.1789	1.642*	1.511	1.002	2.692	2.565**	2.017	1.314	5.009
1001 – 1500	.483**	.807	.312	.749	.553*	.744	.342	.893	.977	1.182	.488	1.957
1501 – 2000	.778	.862	.457	1.323	1.280	1.239	.737	2.224	2.185*	1.851	1.042	4.581
>2000	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Father-mother relationship												
Poor	.432***	1.008	.216	.861	.435*	.804	.198	.957	1.093	1.376	.428	2.791
Average	.358**	1.378	.180	.712	.519	1.781	.249	1.083	1.649	1.999	.726	3.746
Good	.843	1.828	.570	1.246	1.634*	2.483*	1.094	2.442	1.614	3.418*	.945	2.758
Excellent	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Parents-child relationship												
Poor	.417	.425	.142	1.227	.311	.349	.082	1.183	1.607	.683	.447	5.779
Average	.337**	.432	.182	.624	.410*	.375	.207	.815	1.428	.870	.678	3.009
Good	.687*	.458*	.473	.997	1.394	.726	.950	2.046	1.122	.464	.662	1.901
Excellent	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
Family size												
3-4	1.830	1.907	.996	3.361	2.606**	2.722*	1.298	5.233	2.370	2.515	.962	5.842
5-6	2.342**	1.725	1.365	4.016	3.194***	2.342*	1.701	5.996	1.542	1.321	.663	3.588
7-8	2.247*	1.819	1.208	4.179	4.012***	3.259**	1.989	8.092	2.581*	2.314	1.033	6.449
≥9	0[b]	.	.	.	0[b]	.	.	.	0[b]	.	.	.
n **Classification**	752 74.1%				465 17.0%				119 1.0%			
Pseudo R² **LR Chi-Square**					0.298 472.393; df (81), p<0.001							

*p<.05, **p<.01, ***p<.001
Base category is abstainer, RC= Reference category; SE= Standard error; Unstd. = Unstandardised beta coefficient
UAOR= Unadjusted Odds Ratio; AOR= Adjusted Odds ratio; LL= Lower limit of 95% confidence interval and UL = Upper limit of 95% confidence
∞ Measured in Malaysian Ringgit.MYR 1 is equivalent to USD 0.23

from drinking alcohol. The Gawai (paddy harvesting festival) and other cultural and social occasions like weddings, the Christmas festival, and New Year's Eve are linked to alcohol use among Dayaks, particularly adolescents(32). The research found that the majority of Dayak adolescents had a positive relationship with their parents, and the majority of them lived with their families. However, increasing exposure to more drinking family members may explain why Dayak adolescents with more family members are more likely to become hazardous drinkers (33).

Alcohol is readily available in Dayak society, and men prize its use because they believe it was handed down from their forefathers. Its use is an important aspect of the festival and social gathering rituals. Drinking is a component of one's identity and a cultural standard. Furthermore, drinking is often seen as a personal choice or right, and people are held responsible for their choices. Other factors such as urbanization, socio-economic background, peer influence, and various degrees of exposure and vulnerability among ethnic groups can all affect drinking, including influencing others to consume alcohol, despite the differences in cultural and religious norms between Dayak and other ethnic groups (33).

Due to the easy availability of cheaper, more well-known foreign brands of alcohol, interest in local breweries is diminishing. This is particularly true among city dwellers. In terms of availability, buying any form of alcoholic beverage is not a problem in Sarawak since these items are readily available in most local stores and supermarkets. Furthermore, local beers may be purchased through a local vendor rather than being professionally supplied, making them more accessible to adolescents (34).

The differences in alcohol across distinct occupations may be due to the nature of the employment. Students made up the bulk of individuals who took part in the research. The other Dayak adolescents who weren't in school were either jobless or self-employed, and their income was based on the number of working days or hours they put in. Drinking alcohol after work hours could be a form of physical relaxation as well as stress relief for Dayak adolescents or parents who worked in the Sarawak government or private sectors and were involved in unskilled or semi-skilled labor, such as contract laborers, which require greater physical strength to execute (35).

Another idea is that different levels of socio-economic status might influence whether or not people drink often. When drinking is linked to an increase in disposable income, prestige, and social standing, having a high socio-economic position may raise the risk of drinking. Because profession may be used to identify socio-economic status, colleagues' roles and workplace drinking regulations may have an influence on frequent

alcohol use. Low socio-economic position, on the other hand, may limit alcohol use owing to a lack of financial resources. This is not always the case since a lower socio-economic status does not usually mean less alcohol use (36).

The no-risk/abstainer prevalence in the study was lower than the national abstainer prevalence, although the percentage of risky drinkers was higher than the national prevalence (19). However, since the study was done in all divisions, it would be beneficial to further stratify the rural and urban preponderance toward risky drinking. The preference for beer was identical to the national statistics in 2014, likely due to the easy availability of beer (34). However, further studies need to be done to find the link between the types of alcohol preferred by the problem drinkers. Alcohol use among adolescents was seen among those who had no or some pocket money, and the household income did not significantly affect alcohol use. This indicated that social deprivation in terms of monetary means had little effect on the use of alcohol among adolescents and that alcohol drinking could be seen as part of the lifestyle in all societal strata (37).

The study found alcohol use rampant among adolescents with good parental and parent-children's relationships, which is likely due to the poor protective influence of parental communication and rules for children drinking, specifically the period of punishment upon drinking (38). The high proportion of hazardous and harmful use of alcohol among adolescents with secondary school education could be due to the attempt of the adolescents to attain popularity among their peers by indulging in alcohol use, as a consequence of their poor prospects of low self-esteem (39). On the other hand, adolescents who attained higher education were likely to indulge in harmful alcohol use as a direct consequence of experiencing lifting constraints on drinking, apart from stronger peer pressure in higher education surroundings (40).

Since the study focused on Sarawak, the findings cannot be generalised to other states in Malaysia, where the demographic pattern of the population might differ. The scale measuring the independent variables, such as the questionnaires for alcohol use disorder, was self-reported and based on perception, which could lead to bias. In addition, the cross-sectional approach of the research may lead to a lack of causal linkages between dependant and independent variables to be inferred.

CONCLUSION

Our findings concluded that alcohol consumption by Dayak adolescents in Sarawak is prevalent and a public health concern in Sarawak. The lower proportion of abstainers suggested that alcohol use among adolescents is on the rise, while the high proportion of low-risk and

risky drinkers require immediate intervention. Early use of alcohol among adolescents may lead to more severe health and non-health outcomes in adolescents. Multivariate analysis revealed age, gender, ethnicity, religion, employment, level of education, allowance, family relationship, and family size were the potential predictors of alcohol use disorder. Future research focusing on alcohol-related harms and how they differ between ethnic groups would be beneficial. Public health practitioners should utilise the results to promote health promotion regarding harmful alcohol use among adolescents, regardless of religion, education, or other socio-demographic status.

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