

Prevalence and Factors Associated to Alcohol Consumption Behavior during COVID-19 Pandemic Situation among Undergraduate Students from the Central Area of Thailand: A Descriptive Cross-Sectional Study

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Abstract:- Alcohol is readily available in societies which is one of the substances with addictive potential most commonly used by adolescents. Use of alcohol drinking is increasing the risk of acute respiratory distress syndrome, one of the most severe complications of COVID-19. This research was a descriptive cross-sectional study aimed to examine the prevalence and factors associated to alcohol consumption behavior during COVID-19 pandemic situation among undergraduate student from the central area of Thailand. The participants were recruited by using purposive random sampling between June to October 2020 and surveyed 281 undergraduate students who were aged 19-22 years old and registered at the university from the central area of Thailand. The data were collected by using the structured interview consisted of 5 parts. The instruments were tested the validity with IOC between 0.8-1.0 and the reliability with Cronbach's alpha coefficients more than 0.85. Data were analyzed by using descriptive statistics and Chi.-Square Test. The result revealed that the prevalence of alcohol consumption behavior was 43.4% in the past 1 month. Factors which remained significantly associated with alcohol consumption behavior among undergraduate students during the COVID-19 pandemic situation were gender, education year, faculty, social support, availability of alcohol advertisement and source ($p < 0.05$). The finding suggests that the university administrators in the central part of Thailand should focus on associated factors to plan and impose a policy or guidance for changing the appropriate behavior of alcohol consumption behavior among undergraduate students during the COVID-19 situation.

Keywords:- Alcohol Drinking; Health Behavior; COVID-19.

I. INTRODUCTION

According to the World Health Organization's 2014 estimate, 5.1% of the global disease and injury burden can be attributed to drinking alcohol [1]. In recent years, the analysis of international trends and investigations into the determinants of substance use have revealed alcohol consumption as one of the substances typically used and abused by adolescents and young adults [2]. Heavy drinking has largely been a phenomenon of emerging and young adulthood [3], which places individuals at risk for adverse health and social effects [4]. It is believed this vulnerability is in part due to the dramatic life changes in relationships, employment, accommodation and roles of the individual as they transition into adulthood [5]. Harmful drinking behaviors in young people have been associated with greater risk of severe psychiatric and other drinking problems in adults [6].

Nowadays, the rapid of alcohol drinking behavior are increasing in the youth [7]. Thailand has the 5th largest alcohol consumption in worldwide. Moreover, there is an increasing number of alcoholic beverages in Thailand. It was found that 1.06 million people of adolescents aged between 11-19 years who drank alcoholic beverages, representing 21.23 percent of the population in this age group. The men started drinking, younger than women but, the women aged between 15-19 were increased of 6 times for drinking alcohol (from 1.0% to 5.6%) by 14.1% of women youth were regular drank alcohol 2 drinks per week [7].

Each year, the adolescents have more problems related to alcohol drinking behavior. The results were occurred from the nature of youth adults. They are wanted to try or face with the new things or most of them cannot refuse when their friend invited to drink alcohol and they are viewed alcohol as a common practice. The number of males who drank regularly was 48.8% and females who drink regularly was 18.0% [8].

Drinking alcohol may occur to health effects such as stroke, diabetes, liver cancer, depression. Cause alcohol addiction and most importantly, traffic accidents are the main cause leading to loss of injury, death, disability, especially during festivals that have several consecutive holidays [9]. Drinking alcohol can affect to youth adults on many consequences. Around the university has many shops selling alcohol and the density of alcohol outlets around the university had an effect on increasing the motivation to drink alcohol and create a positive attitude for drinking. Therefore, having measures to control the sale of alcoholic beverages around schools is essential. Therefore, it is very necessary to have measures to control the sale of alcoholic beverages around educational institutions [10].

The researcher was aimed to explore the prevalence and factors associated with alcohol drinking behavior during the COVID-19 pandemic among the adolescents from the Central part of Thailand by applying the PRECEED-PROCEED Model [11] to develop the conceptual framework. The results from this study can adapt to establish the guideline or strategy policy to prevent problems from alcohol drinking behavior and reduce the emergence of new drinkers during COVID-19 pandemic. Definitely, the information can be used to assess or predict trends related to alcohol consumption behavior as a guide in the campaign to prevent youth adults who were like the future of the nation and don't become intoxicated with drugs that cause social problems and also includes the prevention of damage to individuals, families and the country during the COVID-19 pandemic in Thailand.

II. METHODOLOGY

The study was a descriptive cross-sectional study to investigate the prevalence and factors associated to alcohol drinking behaviour during the COVID-19 pandemic among undergraduate students from the central portion of Thailand. The population was the undergraduate student and registered to the university from the central state of Thailand. The Central state of Thailand is the most of COVID-19 morbidity and mortality with effect to their lifestyle and alcohol drinking behaviour will make them had the high risk to infection the disease. The subjects were recruited by multi-stage random sampling based on the inclusion and exclusion criteria. The subjects included 281 undergraduate students and the study period during between June to October 2020.

A. Population and samples

The population in this study was the undergraduate students who were aged range between 19-22 years old and registered on academic year 2020 at the university from the central stage of Thailand. The participants of this study were recruited by using the multi-stage random sampling. A sample size of this study was calculated based on analysis of Daniel sample calculation [12]. Thus, the sample size used for this study were 281 cases. The data were collected using the structured online-interview form by using google form. The inclusion criteria in this study were the samples of both men and women who were placed on the university from the central part of Thailand and they were drank alcohol as the last month during COVID-19 pandemic. Moreover, they had good level of consciousness and could communicate, or to be

assessed with all online tests. The sample was participated in the interview and data collection in the study by voluntary. The researcher and co-researcher were informed the participants about the study protocol and the risk after they participated with the study and they signed a written consent form.

B. Instrument of this study

The instruments of this study were an interview form by using google sheet form consisted of 6 parts. The conceptual framework of this research was developed by using PROCEED Model and the literature review related to alcohol consumption behavior. The instrument was measured the validity by peer from 3 experts on health behavior and reported the IOC value. The IOC value was ranged between 0.9-1.0. The reliability was tested in 30 undergraduate students in the same area as the study area whose characteristics were similar to those of the participants. The reliability of Cronbach's alpha coefficients was more than 0.80, it was acceptable of tool. The detail of the instrument can describe as follows:

Part I: The general characteristics questionnaire: The total of this part was 7 questions. This part was to record the general characteristics data such as gender, class of study, faculty, GPA, monthly income, Family status and living.

Part II: The knowledge of effect from alcohol drinking questionnaire; The total of this part was 11 questions. Each question has 3 choices; "much" or "moderate" or "less" When answer "Much" in a positive question, the score 3 was given, while score 2 was given in the answer "Moderate" and score 1 was given in the answer "Less". On the other hand, when answer "Much" in a negative question, a score 1 was given, while 2 score was given in the answer "moderate" and score 3 was given in the answer "Less". The score ranged from 11-33 points. The scores were rated in 3 level based on Bloom theory [13] as follows; the scores less than 19 points represented low level of knowledge on effect from alcohol drinking, scores 19-25 points represented moderate level of knowledge on effect from alcohol drinking and 26-33 points represented high level of knowledge on effect from alcohol drinking.

Part III: The attitude of alcohol drinking assessment form; The total of this part was 5 questions. This part was the Likert scale questions. Each question has 3 choices; "Much" or "Moderate" or "less". When answer "Much" in a positive question, the score 3 was given, while score 2 was given in the answer "Moderate" and score 1 was given in the answer "Less". On the other hand, in a negative question, a score was indirectly given. The score ranged from 3-15 points. The scores were rated in 3 level based on Bloom theory [13] as follows; the scores 3-8 represented low level of attitude on alcohol drinking, the scores 9-11 represented moderate level of attitude on alcohol drinking and the scores 12-15 represented good level of attitude on alcohol drinking.

Part IV: The family relationship assessments; The total of this part was to 5 questions. Each question has 5 answers choices: "Most" or "Much" or "Moderate" or "Little" or "Least". When answer "Most" in a positive question, the score 5 was given, while score 4 was given in the answer "Much", score 3 was given in the answer "Moderate", score 2 was given in the answer "Little" and score 1 was given in the answer

“Least”. On the other hand, in a negative question, a score was indirectly given. The score ranged from 5-25 points. The scores were rated in 3 level based on Bloom theory [13] as follows; the scores 5-15 represented low level of family relationship, the scores 15-19 represented moderate level of family relationship and the scores 20-25 represented good level of family relationship.

Part V: The social support assessments; The total of this part was to 10 questions. Each question has 5 answers choices: “Most” or “Much” or “Moderate” or “Little” or “Least”. When answer “Most” in a positive question, the score 5 was given, while score 4 was given in the answer “Much”, score 3 was given in the answer “Moderate”, score 2 was given in the answer “Little” and score 1 was given in the answer “Least”. On the other hand, in a negative question, a score was indirectly given. The score ranged from 10-50 points. The scores were rated in 3 level based on Bloom theory [13] as follows; the scores 0-29 represented low level of social support, the scores 30-39 represented moderate level of social support and the scores 40-50 represented good level of social support.

Part VI: The alcohol consumption behavior questionnaire; The total of this part was to 7 questions. This part was the open-ended questionnaire and recorded the alcohol consumption behavior such as first aged drinking alcohol, advertisements media of alcoholic beverages, types of alcoholic beverages, time to drink alcohol, Frequency of alcohol purchases, store type to buy alcoholic beverages and reasons to still drink alcohol.

C. Ethical Consideration

The researcher and co-research were informed the participants about the study protocol and the risk of the research before they signed a written consent form.

D. Data Collection

The data collection was performed as follows: 1) The researcher was requested an introduction letter from the Faculty of Public Health, Valaya Rajabhat University under the Royal, Thailand to send to the President of university from the central part of Thailand, to explain the objectives of this study and asked for permission to collect data. After the President of the university was approved the research, the researcher started to perform the procedure 2.) The researcher and co-researcher were trained to use the instrument in this study to evaluate in all of factors and outcome parameter before collecting data by using online platform 3.) The researchers and co-researcher were collected data by meeting the subject and introducing themselves, to explain the study objectives and ask for participation in this study. The subjects were explained that they could refuse or withdraw from the study at any time. When the subjects clearly understood the procedure, they were asked to sign the informed consent form. Then, the researchers started to collect data 4.) The researcher collected data from the undergraduate students from the university. The data were collected by online interview from. For questionnaire, the data collection time was approximately 30 minutes per subject 5.) After the samples were completely answered the online questionnaires, the researcher checked the completeness and thanked them for cooperation. Then, recheck before analyzing data by statistical methods.

E. Statistic Analysis

The descriptive statistics were used to explore the general characteristics and alcohol drinking behavior consisted of number, percentage, mean, standard deviation and range. The relationship between the factors associated to alcohol drinking behavior during COVID-19 pandemic situation among undergraduate students in the central part of Thailand were analyzed by Chi-square test. The significant level of this study was defined at 0.05.

III. RESULTS

The participants in this study had 281 participants who were participated and measured the measurement. From the analysis of the general characteristics of the undergraduate students, the results showed a total of participants were female more than male) 56.6% and 43.4%, respectively(. The majority of the samples were 4th years)31.3%(followed by 3rd years (21.7%). They mostly had monthly income more than 5,000 Thai Baht (75.8%) with an average of 6,845± 2,237, GPA between 2.51-3.00 (45.9%) and sufficiency of monthly income (64.8%). The majority of samples were studied on social and humanity aspect (64.8%), stayed with friends (46.6%), they family stayed together (66.2%), and drank alcohol (84.0%).

TABLE 1. The number and percentage of subject by general characteristics of all participants in this study (n= 281)

Variables	Number	Percentage
Class of study		
1 st year	61	21.7
2 nd year	74	26.3
3 rd year	58	20.7
4 th year	88	31.3
Gender		
Male	159	56.6
Female	122	43.4
Faculty		
Social and Humanity	201	71.5
Sciences and Technology	80	28.5
GPA		
≤ 2.00	16	5.7
2.01-2.50	106	37.7
2.51-3.00	129	45.9
≥ 3.01	30	10.7
Monthly Income		
< 5,000 Thai Baht	68	24.2
≥ 5,001-10,000 Thai Baht	213	75.8
Mean± SD.=6,845±2,237 Baht		
Sufficiency of Monthly Income		
Yes	182	64.8
No	99	35.2
Residents of alcoholic beverages		
Yes	236	84.0

Variables	Number	Percentage
No	45	16.0
Family Status		
Stay together	186	66.2
Separated	51	18.1
Divorced	29	10.5
Widowed	15	5.4
Living		
Lived with friend	131	46.6
Lived with relative	27	9.6
Lived with parent	123	43.8

From the analysis the level of factors related to alcohol drinking behavior among undergraduate students from the central part of Thailand during COVID-19 pandemic situation. They mostly had high level, followed moderate level of knowledge on effect from alcohol drinking)77.2% and 22.8%, respectively(. The scores were ranged from 19-33 with mean of 27.40 and standard deviation of 2.70. In addition, they mostly had good level)50.9%(, followed by moderate and low level on attitude of alcohol drinking)36.3% and 12.8%, respectively(. The score ranged from 5-15 with mean of 11.25)S.D. = 2.2(. The majority of the sample had moderate level of family relationship)51.2%(, followed by good level and low level of family relationship)36.3% and 5.0%, respectively(. The score ranged from 10-25 with mean of 18.86)S.D. = 2.66(Furthermore, the majority of undergraduate students had moderate level (54.4%(, followed by good and low level of social support)40.6% and 5.0%, respectively(. The score ranged from 23-50 with mean of 37.62)S.D. = 4.67(.

TABLE 2. The number and percentage of subject by the level of factors related to alcohol drinking behavior among undergraduate students during COVID-19 pandemic situation (n= 281)

Variables	Number	Percentage
Knowledge of effect from alcohol drinking		
Moderate	64	22.8
High	217	77.2
Mean± SD.=27.40±2.70, Range= 19-33 scores		
Attitude of alcohol drinking		
Low	36	12.8
Moderate	102	36.3
Good	143	50.9
Mean± SD.=11.25±2.20, Range= 5-15 scores		
Family relationship		
Low	14	5.0
Moderate	144	51.2
Good	123	43.8
Mean± SD.=18.86±2.66, Range= 10-25 scores		
Social support		
Low	14	5.0
Moderate	153	54.4
Good	114	40.6

Variables	Number	Percentage
Mean± SD.=37.62±4.67, Range= 23-50 scores		

According from the analysis of alcohol consumption behavior characteristics of undergraduate student during the COVID-19 pandemic situation, the results showed that they drank their first alcohol when they were younger than 15 (64.1%). The majority of the samples were received the advertisements of alcohol drinking from Facebook)28.1%(followed by social network and television)21.7% and 20.3%, respectively(. They mostly had regularly drink alcohol (79.7%) with beer and followed by colored liquor (57.3% and 16.7%, respectively(. The majority of the sample had 1-2 time/week of drinking alcohol)28.1%(, drank alcohol at night)63.3%(, buy alcoholic beverages from minimart/convenience store/supermarket)36.6%(and 40.2% of them were still to drink alcohol with friend or family persuaded, feeling fun and stress with COVID-19 pandemic (25.6% and 20.6%, respectively(.

TABLE 3. The characteristics of alcohol drinking behavior among undergraduate students during COVID-19 pandemic situation (n= 281)

Variables	Number	Percentage
First aged drinking alcohol		
Less than 15 years	180	64.1
15-18 years	71	25.2
19-21 years	30	10.7
Mean± SD.=15.02±2.20, Range= 11-21 years		
Advertisement media of alcohol beverages		
Facebook	79	28.1
Social network (Twister, Instagram, etc.)	61	21.7
Television/Radio	57	20.3
YouTube	50	17.8
Line	23	8.2
Billboard	11	3.9
Types of alcoholic beverages		
Beer	161	57.3
Colored liquor	47	16.7
Spy	40	14.2
White liquor	20	7.1
Herbal liquor	10	3.6
Vodka	3	1.1
Frequency of drinking alcohol		
Regularly Drank	224	79.7
Infrequently Drank	57	20.3
Frequency of alcohol purchases		
7 days/week	63	22.5
5-6 days/week	33	11.7
3-4 days/week	83	29.5
1-2 days/week	102	36.3
Time to drink alcohol		
Moring	9	3.2

Variables	Number	Percentage
Afternoon	12	4.3
Evening	82	29.2
Night	178	63.3
Store type to buy alcoholic beverages		
Minimart/Convenience Store/Supermarket	103	36.6
Grocery store/show shop	73	26.0
Entertainment place/pub/bar/karaoke shop	73	26.0
Yadong kiosks / liquor kiosks / beer gardens	28	10.0
A la carte restaurant	4	1.4
Reasons to still drink alcohol		
Friends or family persuaded	113	40.2
Feeling fun	72	25.6
Stress with Covid-19 pandemic	58	20.6
Addicted to drink	14	5.0
Social gathering	11	4.0
Problems in their life and	7	2.5
Feel mature	6	2.1

According to the data analysis of association between all factor and alcohol consumption behavior, it was found that gender ($X^2=8.512$, $p=0.004$), education year ($X^2=8.499$, $p=0.037$), study area ($X^2=8.512$, $p=0.004$), social support ($X^2=15.634$, $p=0.011$), availability for alcohol beverage store ($X^2=15.634$, $p=0.011$), availability for advertisement of alcohol beverages ($X^2=14.777$, $p=0.022$) were significantly associated with alcohol consumption behavior among undergraduate students from the central part of Thailand during the COVID-19 pandemic situation.

TABLE 4. The relationship between characteristics of alcohol drinking behavior among undergraduate students during COVID-19 pandemic situation (n= 281)

Variables	df	X^2	p-value
Gender	1	8.512	0.004*
Education Year	3	8.499	0.037*
Study Area	1	11.305	0.001*
GPA	3	5.783	0.123
Monthly Income	1	5.055	0.080
Knowledge of effect from alcohol drinking	1	1.140	0.286
Attitude of alcohol drinking	2	0.990	0.610
Family relationship	2	0.642	0.725
Social support	2	15.634	0.011*
Availability for alcohol beverage store	3	14.777	0.022*
Availability for advertisement of alcohol beverages	4	13.002	0.011*

REMARK: Data were analyzed with Chi-square test
*Statistically significant at the 0.05 level p -value <0.05 .

IV. DISCUSSION AND CONCLUSION

The study design was the descriptive cross-sectional study. They mostly had regularly drunk alcohol during the COVID-19 pandemic situation (79.7%). According to the factor related with alcohol consumption behavior were gender, education year, study area, social support, availability for alcohol beverage store and availability for advertisement of alcohol beverages. The result is consistent with the study of the E.R. Grossman, et al. [14] whose studies alcohol consumption during the covid-19 pandemic: a cross-sectional survey of US. adults [14] whose study the alcohol consumption and economic effect during covid-19 pandemic. The 1,555 participants had aged 18 years old and older who were participated in this study. The finding indicates that, in the past 12 months, 32.4% of the samples were regularly drank alcohol during the covid-19 situation by 2/3 drank alcohol at home. Similarity with J.D. Wardell et al [15] whose studies provides an empirical examination of coping motive pathways to alcohol problems during the early stages of the covid-19 pandemic. Participants were Canadian adult drinkers who completed an online survey assessing over the past 30 days. The result showed that depression, lower social connectedness, income loss was associated with alcohol consumption during covid-19 pandemic situation.

The results may be explained that firstly, adolescence is a time known for risky behaviors and often the initiation of alcohol use. The data in the past 10 years have shown more girls are binge drinking and meeting criteria for alcohol use disorder (AUD). Historically, men and male adolescents consumed more alcohol than females. Recent studies indicate girls' alcohol use surpasses boys. During the pandemic, normal daily activities have been halted with the uncertainty of school closures, zoom classroom sessions, and living in mandated social isolation. Adolescents has need support to strengthen interpersonal skills as well as make informed decisions concerning when and how they engage in alcohol consumption [16]. Secondly, alcohol drinking consumption may increase risky of covid-19 infection and complication. At the same time, it is the cause of medical and social problems to raise a burden on health care services. Moreover, alcohol drinking consumption is crucial cause to distribute of coronavirus-2019 by reducing social restraint even if they little drank alcohol and main causes to occur serious illness when they did not practice followed by the routine prevention for covid-19 such as social distancing, washing hands, and etc.

Thirdly, complications from heavy drinking are risk factors for contracting COVID-19 alcohol (such as diabetes, obesity, cardiovascular disease) and binge drinking can depress the immune system's response and increase the chance of severe respiratory disease. Obviously, the problems from alcohol drinking are using a lot of health services and the strictly alcohol control policy during the covid-19 outbreak will help to reduce the burden of excess health services during this period by reducing both the demand for alcohol and health

services from covid-19. [17] Fourthly, feelings of loneliness, stress and depression from covid-19 pandemic, it is becoming even heavier when drinking alcohol. The health personnel should advise adolescence who are at risk of infection or at risk of serious complications to reduce or stop drinking alcohol due to covid-19 outbreak. Therefore, effective policies will be able to help limit the spread of the virus, reduce the burden of health services and increase revenue for the state. So, the way to solve the problem of drinking alcohol, their parents and lecture should talk with the adolescence about problems related to drinking and covid-19 such as violation of quarantine and physical distancing which could increase the spread of the disease. They should advise them to completely avoid drinking alcohol because it can destroy the immune system and their own well-being and increasing the health risks of others, it is advisable to inform adolescence that drinking is not a means of coping with emotions and stress and avoid drinking alcohol along with smoking. Because smoking can cause serious complications in people with covid-19[18]. Conclusion, Binge drinking, or higher-risk drinking, is largely a social phenomenon motivated by real or perceived peer pressure of the adolescences. Because of the social distancing measures that have been put in place to limit the spread of COVID-19. However, there is also significant evidence that adolescences. who are still binge drinking are consuming more alcohol and more often? And, although social distancing has become an unexpected protective factor against binge drinking, teenagers report using alcohol at home more frequently during the pandemic. Moreover, during the covid-19 pandemic, there has been an increase in domestic violence, for which harmful alcohol consumption is a risk factor. The governments have at their disposal of policy interventions to tackle harmful alcohol consumption and prevent related diseases. A policy consisted of 1.) policing to counter drink-driving, strengthening, 2.) strengthening of primary care-based counselling for heavy drinkers, 3.) regulation on promotion, including a ban on alcohol advertising to children, and 4.) pricing policies particularly to target cheap alcohol has the potential to prevent diseases and injuries, increase life expectancy and generate savings that are greater than the implementation costs. Reducing alcohol consumption can benefit with aspects. Firstly, reducing alcohol use helps individuals cope with infections and develop immunity after vaccination. Secondly, preventing alcohol use and its associated diseases reduces pressure on health care services – which are already under heavy strain from covid-19. Thirdly, with prevention of harmful alcohol consumption, a healthier and more productive population will better help restart economic activities and social life in the aftermath of the pandemic [19].

V. LIMITATION AND RECOMMENDATIONS

There was limitation in this study, it was explained that the study design was a cross-sectional study which could not describe the cause-effect. Because, the factors and outcome were measured simultaneously in the same period. Cited to the cross-sectional design was appropriate for this study in terms of shorter time of investigation the relationship between factors and outcome variable and low cost, it did not

allow interpretation of the finding further than the association between variables of interest. Conclusion The results of this study may not explain about the causal relationship between variable examined. Therefore, a cohort study or case-control design would be useful for future research so that more implication will be better justified. The advance statistics should select to investigate the strongly relationship and explore the causal model in order to better understand the problem in participants. For the recommendation from this study, the university administrators, health care provider and local administrative can integrate the factors associated with the alcohol drinking behavior during the covid-19 pandemic to plan and impose a policy or guidance for prevent and control the effect from alcohol drinking especially the covid-19 situation. Aggregation is a major cause of the spread of coronavirus infections. From the covid-19 pandemic, the social distancing, astrain group meeting of the activity can postpone the viral distribution. Normally, alcohol drinking is the social gathering with many people to join with event. For the next study design, the mixed-method research is proper design to understand the cause by using in-depth interviews or focus group for the qualitative part.

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