ปัจจัยที่มีความสัมพันธ์กับการดื่มเครื่องดื่มแอลกอฮอล์ของนักเรียนหญิงชั้นมัธยมศึกษาตอนปลาย จังหวัดชลบุรี
Factors Related to Alcohol Drinking in Female Senior High School Students in Chonburi Province

นิพนธ์ต้นฉบับ

Original Article

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วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ2564;16(4):332-338.

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาปัจจัยที่สัมพันธ์กับการดื่มเครื่องดื่มแอลกอฮอล์ของนักเรียนหญิงชั้นมัธยมศึกษาตอนปลาย **วิธีการศึกษา:** การศึกษาแบบความสัมพันธ์มีกลุ่มตัวอย่างคือ นักเรียนหญิงชั้นมัธยมศึกษาตอนปลาย จังหวัดชลบุรี 373 คน ด้วยการสุ่มอย่างง่าย เครื่องมือเก็บข้อมูลเป็น แบบสอบถามข้อมูลส่วนบุคคล การดื่มเครื่องดื่มแอลกอฮอล์ ความเครียด การรับรู้สมรรถนะแห่งตนในการปฏิเสธการดื่มเครื่องดื่มแอลกอฮอล์ ทัศนคติต่อการดื่มเครื่องดื่มแอลกอฮอล์ การเข้าถึงเครื่องดื่มแอลกอฮอล์ การถูกชักชวน การรับรู้การโฆษณาของสื่อ การรับรู้กฎระเบียบเกี่ยวกับการดื่มเครื่องดื่มแอลกอฮอล์ และการดื่มเครื่องดื่มแอลกอฮอล์ของบิดามารดา เก็บข้อมูลเดือนสิงหาคม 2562 วิเคราะห์ข้อมูลด้วยสถิติพรรณนาและการวิเคราะห์ถดถอยโลจิสติก แสดงผลความเสี่ยงเป็น adjusted odds ratio (adj. OR) และ 95% confidence interval (CI) **ผลการศึกษา:** กลุ่มตัวอย่างร้อยละ 67.8 มีประสบการณ์การดื่มเครื่องดื่มแอลกอฮอล์ และที่เหลือไม่เคยดื่มเลย ปัจจัยที่สัมพันธ์กับการดื่มเครื่องดื่มแอลกอฮอล์อย่างมีนัยสำคัญทางสถิติ ได้แก่ ความเครียด (adj. OR = 2.15, 95% CI = 1.29 - 3.58) การรับรู้สมรรถนะแห่งตนในการปฏิเสธการดื่มเครื่องดื่มแอลกอฮอล์ (adj. OR = 2.60, 95% CI = 1.58 - 4.29) การเข้าถึงเครื่องดื่มแอลกอฮอล์ (adj. OR = 1.69, 95% CI = 1.01 - 2.82) การถูกชักชวนให้ดื่มเครื่องดื่มแอลกอฮอล์ (adj. OR = 1.84, 95% CI = 1.01 - 3.36) การดื่มเครื่องดื่มแอลกอฮอล์ของบิดามารดา (adj. OR = 2.09, 95% CI = 1.16 - 3.78) **สรุป:** การดื่มเครื่องดื่มแอลกอฮอล์ของนักเรียนหญิงชั้นมัธยมศึกษาตอนปลายสัมพันธ์กับความเครียด การรับรู้สมรรถนะแห่งตนในการปฏิเสธการดื่มเครื่องดื่มแอลกอฮอล์ การเข้าถึงเครื่องดื่มแอลกอฮอล์ การถูกชักชวนให้ดื่มเครื่องดื่มแอลกอฮอล์ และการดื่มเครื่องดื่มแอลกอฮอล์ของบิดามารดา ซึ่งควรนำปัจจัยเหล่านี้ไปร่วมพัฒนากิจกรรมเพื่อลดพฤติกรรมการดื่มเครื่องดื่มแอลกอฮอล์ของนักเรียนหญิงมัธยมปลาย

คำสำคัญ: การดื่มเครื่องดื่มแอลกอฮอล์, ความเครียด, การรับรู้สมรรถนะแห่งตนในการปฏิเสธการดื่มเครื่องดื่มแอลกอฮอล์, การเข้าถึงเครื่องดื่มแอลกอฮอล์, การถูกชักชวนให้ดื่มเครื่องดื่มแอลกอฮอล์, การดื่มเครื่องดื่มแอลกอฮอล์ของบิดามารดา, นักเรียนหญิงชั้นมัธยมศึกษาตอนปลาย

Abstract

Objective: To examine associations between alcohol consumption and various factors among female high school. **Method**: In this correlation research, 373 female senior high school students in Chonburi province were recruited using the simple random technique. Research instruments included questionnaires to gather demographic information, alcohol drinking, stress, alcohol drinking refusal self-efficacy, attitude towards alcohol drinking, access to alcoholic beverages, persuasion to alcohol drinking, perceived media advertisement, parent's alcohol drinking, and perceived alcohol drinking regulation. Data collected in August, 2019. Descriptive statistics and binary logistic regression analysis were used to analyze the data. Risk was presented as adjusted odds ratio (adj. OR) with 95% confidence interval (CI). **Results**: 67.8% of participants had at least one alcohol drinking in their life while the rest did not. The significant factors related to alcohol drinking were stress (adj. OR = 2.15, 95% CI = 1.29 - 3.58), alcohol drinking refusal self-efficacy (adj. OR = 2.60, 95% CI = 1.58 - 4.29), access to alcoholic beverages (adj. OR = 1.69, 95% CI = 1.01 - 2.82), persuasion to alcohol drinking (adj. OR = 1.84, 95% CI = 1.01 - 3.36), and parent's alcohol drinking (AOR = 2.09, 95% CI = 1.16 - 3.78). **Conclusion:** Alcohol drinking among female senior high school students was associated with stress, alcohol drinking refusal self-efficacy, access to alcoholic beverages, persuasion to alcohol drinking and parent's alcohol drinking. These factors should be used in developing activities/ programs to reduce alcohol drinking among these students.

Keywords: alcohol drinking, stress, alcohol drinking refusal self-efficacy, attitude towards alcohol drinking, access to alcoholic beverages, persuasion to alcohol drinking, perceived media advertisement, parent's alcohol drinking, perceived alcohol drinking regulation, female senior high school students

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Introduction

Alcohol drinking has been a considerate problem in many countries since it is a risk factor for illnesses, disabilities and death worldwide.[1] Based on the World Health Organization data in 2014, alcohol consumption of Thai people was ranked 78th in the world[2,3] and third in Asia preceding by South Korea and Japan.[4] Thai people drank 7.1 liter person by average and

had the expenditure for alcoholic beverage of 509 Baht per day or 6,108 Baht per year by average.[2,3] The increased number of women aged 15 years or older consuming alcohol has been observed from 10.9% in 2011 to 13.0% in 2015.[5] In addition, average age of female school students starting alcohol consumption was about 19 years old.[6]

Alcohol drinking among women affects physical and social health of the women. For physical health, blood alcohol level in women is higher than men for a given amount of alcohol consumed. This is because women body is smaller than men and contains less water than men resulting in a higher concentration of blood alcohol. This high blood alcohol level is associated with the risk of heart disease, hypertension, breast cancer and sexual function deficit.[2] For impacts on social health, alcohol drinking is associated and with various social problems as indicated by, for instance, the increase in unplanned or unwanted adolescent pregnancy, abortion among adolescents.[7] With the concern of problems associated with alcohol consumption among adolescents, Thai government implemented the national policy to control alcohol consumption, to enhance perspective on healthy life among adolescents, to prevent the new alcohol drinkers, to decrease the volume of alcohol consumption nationwide in all age groups, and protect and alleviate impacts of alcohol-related adversities.[8]

Various causes of and factors associated with alcohol drinking in adolescents have been studied. Specifically, factors associated with alcohol drinking in female adolescents included academic achievement[9-11], stress[12,13], alcohol drinking refusal self-efficacy, attitude toward alcohol consumption, having close friends who drink alcohol, having been persuaded to drink alcohol, parent's alcohol drinking, access to alcohol beverages, media alcohol advertisements[10,11,14], and perceived alcohol drinking regulation.[15,16] These factors affect alcohol drinking among female adolescents significantly. With such burden imposed by physical and social problems associated with alcohol drinking, the problem of alcohol drinking among adolescents especially female ones should be handled properly. Health promotion aiming at preventing risk behaviors including alcohol drinking among adolescents should be developed. However, a thorough understanding about factors associated with alcohol drinking among female adolescents is needed before such health promotion could be properly developed. Thus this study aimed to determine factors associated with alcohol drinking among female adolescents, specifically those female senior high school students. The study was based on the Theory of Triadic Influence (TTI) of Flay and Petraitis.[17] With the context of substance abuse among adolescents, causes of substance abuse among adolescents are dynamic with complicate interactions of various, not single factors, as suggested by the TTI. In this present study, the researcher aimed to determine level of alcohol drinking of female senior high school students and its associating factors including academic achievement, stress, alcohol drinking refusal self-efficacy, culture- and attitude-related factor which was attitude toward alcohol drinking, social factors which were having close friends who drink, having been persuaded to drink alcohol, parent's alcohol drinking, access to alcohol beverages, perception on media advertisement, and perceived alcohol drinking regulation. The target study subjects were female senior high school students in the province of Chonburi, Thailand. Findings from the study could be useful as basis for health promotion intervention development, and all involved parties in the community including practicing healthcare providers, teachers, schools, and parents, in preventing and alleviating the problems of alcohol drinking among female adolescents.

Methods

In this correlational study, study population was 5,197 female senior high school students in public schools under the supervision of the education region 18 (Chonburi province), Thailand, in the academic year 2018. Sample size was estimated using the equation of Parel et al.[18], $n = NZ^2\alpha_{/2}\, p(1-p) / [\, Nd^2 + Z^2\alpha_{/2}\, p(1-p)]$, where n = sample size, N = 5,197 female senior high school students as study population, Z = 1.96 for a type I error of 5% and two-sided test, p = proportion of students who drank alcohol. As suggested by a 50.2% of female students who drank from a study in senior high school in Chanthaburi province which was close to Chonburi province, proportion of subject with alcohol drinking history (p) was set at 0.511. With an absolute error (d) of 0.05, a sample size of 357 participants was required. To compensate for incomplete data which was assumed to occur in 10% participants, a sample size of 392 participants was needed.[20]

Participant recruitment

In the education region 18 (Chonburi province), there were 11 senior high schools, i.e., one in each of the 11 districts. Among these 11 schools, five were selected by simple random sampling. For each of these five schools, an academic class

(or grade of 4 to 6) of senior high school level was selected by simple random sampling as the results were: school number 1, grade 4 with 284 female students; school number 2, grade 6 with 121 female students; school number 3, grade 5 with 149 female students; school number 4, grade 5 with 83 female students; and school number 5, grade 6 with 229 female students. Sample sizes proportional to the number of female students in each of the five schools were 129, 55, 67, 38 and 103 female students for school numbers 1 to 5, respectively. For each grade selected, classrooms were selected using simple random sampling without replacement. Selected classrooms and number of students in the classrooms were as follows: school number 1, classrooms 4/1/, 4/2, 4/5, 4/7 and 4/10 with 134 female students; school number 2, classrooms 6/1, 6/4 and 6/5 with 48 female students; school number 3, classrooms 5/1/, 5/2, 5/4, 5/5, 5/7, 5/12, 5/13 and 5/15 with 50 female students; school number 4, classrooms 5/1 and 5/4 with 30 students; and school number 5, classrooms 6/1/, 6/2, 6/5, 6/7 and 6/9 with 373 female students, resulting in a total of 373 female students.

Research instruments

In this survey study, a questionnaire with 8 sections was used. In the first section, demographic characteristics were collected including age, academic year (or grade), academic achievement, persons the student lived with, living arrangement, having close friends who drink alcohol, having been persuaded to drink alcohol and parent's alcohol drinking. Questions were in multiple-choice and open-ended format. The second section asked about alcohol beverage consumption behavior using the one-item questionnaire of Homsin.[21] The answer could be never drink, drink only one glass or can in the lifetime, drink occasionally, or drink regularly. The score of 0 was given for "never drink" and 1 for the rest of the choices.

The third section assessed stress using the Stress Test (ST5) of the Department of Mental Health.[22] ST5 contains 5 questions asking about feeling, uneasiness, pressure and feeling forced. The response is a 4-pointrating scale of 3-always, to 2-often, 1-sometimes, and 0-never. With the total score of 0 – 15 points, stress level could be categorized as low and high (0 – 4 and 5 – 15 points, respectively).

The fourth section asked about attitude toward alcohol drinking which included belief about and attitude toward how to do with alcohol drinking. This attitude was measured using the questionnaire of Homsin[21] which evaluates three aspects of the attitude including understanding, feeling and practice. Of the total of 25 questions, 15 and 10 of them were positive and negative statements, respectively. The response is a Likert-type rating scale ranging from 4-strongly agree, to 3-agree, 2-disagree, 1-strongly disagree for positive statements, and with reverse scores for negative ones. Higher total scores indicate higher level of positive attitude. Based on the mean total score of all participants, positive attitude was categorized less and more accepting toward alcohol drinking based on the total score of less than the average score and at the average score or higher, respectively. The scale had a high internal consistency reliability with a Cronbach's alpha coefficient of 0.89.[21]

In the fifth section, alcohol drinking refusal self-efficacy was measured. The 14 questions of Homsin[21] were used to measure alcohol drinking refusal self-efficacy. The response is a 4-point rating scale ranging from 4-highly confident, to 3-confident, 2-rather not confident and 1-totally not confident. If the total score was lower than the median value of all participants, a participant's alcohol drinking refusal self-efficacy was categorized as low; otherwise it was categorized as high.

The sixth section asked about the access to alcohol beverages. The five questions of Hemchayat[10] asked how difficult to access to alcohol beverages at various sources such as pubs/bars, vendors and convenient stores. Response is a 4-point rating scale ranging from 4-highly agree, to 3-agree, 2-disagree, and 1-highly disagree. If the total score was lower than the median value of all participants, a participant's access to alcohol beverages was categorized as difficult; otherwise it was categorized as easy.

In the seventh section, the perception on media advertisement on alcohol beverage access was assessed. The five questions of Tonpornkrang and colleagues15 asked about the access to alcohol beverage shown in visual/audio advertisements and others like news from mass media. Response is a 4-point rating scale ranging from 4-highly agree, to 3-agree, 2-disagree, and 1-highly disagree. If the total score was lower than the median value of all participants, a participant's perception on media advertisement on alcohol beverage was categorized as low; otherwise it was categorized as high.

In the last section, the 12 questions of Tonpornkrang et al[15] were used to ask about perceived alcohol drinking regulation on alcoholic beverages in school. A score of 1 point was given for a perceiving response and zero for a non-perceiving one. If the total score was lower than the median

value of all participants, a participant's perceived alcohol drinking regulation on alcoholic beverages was categorized as not perceiving; otherwise it was categorized as perceiving.

Participant protection and data collection procedure

The study protocol was approved by the Ethics Committee for Human Study, Graduate Studies, Faculty of Nursing, Burapha University (approval number: 10-07-25623;90). In data collection process, parents and students were informed with study objectives and process. Voluntary nature of the study was elaborated so participants could participate voluntarily and withdraw from the study at any time with no consequences. Once agreed by both the parent and student, written informed consent was obtained. The researcher with the help of the teacher, arrange questionnaire completion session in the classroom with sufficient space for privacy for each student. This self-administered questionnaire took about 30 minutes to complete. The researcher examined the filled questionnaire for any incomplete answers. Data were analyzed and presented as summary, not individual student or school statistics.

Data analysis

Demographics characteristics, alcoholic drinking behavior and its predictors were presented with descriptive statistics including frequency with percentage, mean with standard deviation and median. Binary logistic regression was used to predict alcohol drinking behavior (yes/no) with simultaneous independent predictors. Likelihood of drinking alcohol was presented as adjusted odds ratio (adj. OR) with 95% confidence interval (CI). Statistical significance for all tests was set a type I error of 5%. Statistical analyses were performed using SPSS statistical software version 26.

Results

With the total of 373 participants with completed questionnaire, this sample size was adequate for the 357 participants required. Of these 373 participants, proportions of students in grades 4, 5 and 6 were considerably equal (31.4%, 33.5% and 35. 91%, respectively) (Table 1). With the youngest age of 15 years and oldest of 19 years, their mean age was 17 years (SD = 1.06). About two-third lived with parents (62.7%) and slightly more than half reported father drank alcohol (57.1%), had close friends who drank alcohol (57.4%), and had been persuaded to drink alcohol (50.7%).

Table 1 Demographic characteristics of participants (N = 373).

Characteristics	N	%
Age (years)		
15	71	19.0
16	106	28.4
17	113	30.3
18	79	21.2
19	4	1.1
Min, Max = 15, 19; Mean = 17; SD = 1.06		
Academic class of senior high school		
Grade 4	117	31.4
Grade 5	125	33.5
Grade 6	131	35.1
Living arrangement		
Living with both parents	234	62.7
Living with father or mother	82	22.0
Living with relatives	50	13.4
Living alone in an apartment	6	1.6
Living with friend in an apartment	1	0.3
Having close friend(s) who drank alcoholic beverage		
Yes	214	57.4
No	159	42.6
Having been persuaded to drink alcohol		
Yes	189	50.7
No	184	49.3
Parent's alcohol drinking		
Yes	213	57.1
No	160	42.9

Based on alcohol drinking history, 32.2% of them never drink alcohol while the rest 67.8% drink at least once in their lives (Table 2). Specifically, those who drink occasionally (i.e. less than once a week) for example in parties and ceremonies and those who drink only one glass or can in the lifetime accounted for 42.6% and 16.6% of the participants, respectively. Other types of alcohol drinking history were found in relatively small numbers of participants.

Table 2 Alcohol drinking history (N = 373).

Alcohol drinking history	N	%
Never drink	120	32.2
Drink occasionally (less than once a week)	159	42.6
Drink only one glass or can in the lifetime	62	16.6
Having been drinking but abstinent for more than 6 months	25	6.7
Drink almost every day or everyday	6	1.6
Drink once a week regularly	1	0.3

The majority of participants had academic achievement with GOA of 3 or higher (76.1%), had low stress level (51.7%), had a low level of alcohol drinking refusal self-efficacy (50.7%), had more accepting attitude toward alcohol drinking (57.6%), had difficult access to alcohol beverages (54.4%), had low perception on media advertisement (58.2%), had low perceived alcohol drinking regulation (60.6%), had close friends who drink (57.4%), had been persuaded to drink alcohol (50.7%), and had parents who do not drink (57.1%) (Table 3).

Table 3 Psychosocial factors associated with alcohol drinking (N = 373).

Factors	N	%
Academic achievement (GPA)		
≤ 3	89	23.9
> 3	284	76.1
Min = 1.78, Max = 4; Mean = 3.51; SD = 0.58 Median = 3.79		
Stress level		
Low (0 – 4 points)	193	51.7
High (5 – 15 points)	180	48.3
Min = 0, Max = 15; Mean = 4.41; SD = 2.86 Median = 4		
Alcohol drinking refusal self-efficacy		
High (47 – 56 points)	184	49.3
Low 14 – 46 points)	189	50.7
Min = 14, Max = 56; Mean = 44.32; SD = 10.06 Median = 46		
Attitude toward alcohol drinking		
Less accepting (27 – 56 points)	158	42.4
More accepting (57 – 78 points)	215	57.6
Min = 27, Max = 78; Mean = 57; SD = 7.90 Median = 58		
Access to alcohol beverages		
Difficult (5 – 9 points)	203	54.4
Easy (10 – 20 points)	170	45.6
Min = 5, Max = 20; Mean = 10; SD = 3.11 Median = 10		
Perception on media advertisement		
Low (1 – 10 points)	217	58.2
High (11 – 24 points)	156	41.8
Perceived alcohol drinking regulation		
Low (2 – 10 points)	226	60.6
High (11 – 18 points)	147	39.4
Min = 2, Max = 18; Mean = 11; SD = 1.74 Median = 11		
Having close friend(s) who drink		
No	159	42.6
Yes	214	57.4
Having been persuaded to drink alcohol		
No	184	49.3
Yes	189	50.7
Parent's alcohol drinking		
No	160	57.1
Yes	213	42.9

Factors that were significantly associated with an increased likelihood of alcohol drinking included stress with the highest effect size followed by stress level, alcohol drinking refusal self-efficacy, access to alcohol beverages, having been persuaded to drink alcohol and parent's alcohol drinking (Table 4). Participants with a high stress level were 2.15 times more likely to drink alcohol than those with a low level (adj. OR = 2.15, 95% CI = 1.29 - 3.58). Low level of alcohol drinking refusal self-efficacy was associated with 2.60 times of chance of alcohol drinking compared with a high level (adj. OR = 2.60, 95% CI = 1.58 - 4.29). Easy access to alcohol beverages was 1.69 times more likely to have the person be a drinker (adj. OR = 1.69, 95% CI = 1.01 - 2.82) than difficult access. Participants who had been persuaded to drink alcohol were 1.84 times more likely to drink alcohol than their counterparts (adj. OR = 1.84, 95% CI = 1.01 - 3.36). Having parents with alcohol drinking history was 2.09 times more likely to have the person be a drinker (adj. OR = 2.09, 95% CI = 1.16 - 3.78) than not having one (Table 4).

Table 4 Associations between alcohol drinking history and its psychosocial factors (N = 373).

Factors	N, % by alcohol drinking history				Adjusted OR	95 % CI
	No (n = 120)		Yes (n = 253)			
Academic achievement (GPA)						
> 3[ref]	98	34.5	186	65.5		
≤ 3	22	24.5	67	75.5	1.27	0.70 - 2.32
Stress level						
Low[ref]	76	39.4	117	60.6		
High	44	24.4	136	75.6	2.15*	1.29 - 3.58
Alcohol drinking refusal self-efficacy						
High[ref]	83	45.1	101	54.9		
Low	37	19.6	152	80.4	2.60*	1.58 - 4.29
Attitude toward alcohol drinking						
Less accepting[ref]	46	29.1	112	70.9		
More accepting	74	34.4	141	65.5	0.73	0.44 - 1.20
Access to alcohol beverages						
Difficult[ref]	77	37.9	126	62.1		
Easy	43	25.3	127	74.7	1.69*	1.01 - 2.82
Perception on media advertisement						
Low[ref]	73	33.6	144	66.4		
High	47	30.1	109	69.9	0.99	0.59 - 1.69
Not perceiving	47	32.0	100	68.0	0.80	0.47 - 1.36
Perceived alcohol drinking regulation on alcoholic beverages						
Perceiving[ref]	73	32.3	153	67.7		
Not perceiving	47	32.0	100	68.0	0.80	0.47 - 1.36
Having close friend(s) who drink						
No[ref]	70	44.0	89	56.0		
Yes	50	23.4	164	76.6	1.40	0.84 - 2.36
Having been persuaded to drink alcohol						
No[ref]	82	44.6	102	55.4		
Yes	38	20.1	151	79.9	1.84*	1.01 - 3.36
Parent's alcohol drinking						
No[ref]	77	48.1	83	51.9		
Yes	43	20.2	170	79.8	2.09*	1.16 - 3.78

Note: [ref] Reference group; * Statistical significant at *P*-value < 0.05.

Discussions and Conclusion

Our study found that 67.8% of female senior high school students in Chonburi province drank alcohol at least once in their lives. This finding was higher than the previous study of Hemchayat and colleagues 56.3% of female college students in Chanthaburi[10], the neighbor province of Chonburi. Our high incidence could be because female students who had tried to drink alcohol were included in our study. In general, female high school students rarely drink alcohol. Once only present drinkers which included those who drank occasionally, those who used to drink but were abstinent for more than 6 months, and those who drank once a week regularly, were considered, only 52.3% met the criterion of being the drinker which was lower than 56.3% of Hemchayat et al.[10] This finding was consistent with the fact that younger individuals are less likely to drink compared with those older.

More stress was found to be associated with more chance of drinking. This is consistent with the Theory of Triadic Influence (TTI) which was developed in the context of

substance abuse in adolescents. Based on TTI, individual's behavior is influenced by 3 factors namely intrapersonal influences, cultural environment/attitudinal influences, and interpersonal/social influences. Stress is an intrapersonal influence that control behavior and emotion of adolescents which could ultimately impact sense of self/control and social competence. The ability to control behavior and emotion could bring adolescents self-esteem, confidence, and self-determination which is consistent with the works of Samai and colleagues[12] and Sukantha and colleagues.[23]

Alcohol drinking refusal self-efficacy was associated with alcohol drinking. Perceived self-efficacy is directly influencing the actual behavior implementation.[24] According to TTI, self-efficacy is a proximal influence on the decision to try or initiate the behavior of the individual. The history of alcohol drinking among female adolescents and their self-efficacy was also tested in the study of Young et al[25] where alcohol drinking refusal self-efficacy was a crucial factor to drive the actual action of denying alcoholic drink offer with confidence. Such association was also confirmed in studies of Hemchayat and Yodnil[11] and Hemchayat et al.[10]

Easy access to alcohol beverages could allow for the actual alcohol drinking. Based on the TTI, adolescents could modify their behavior of alcohol drinking by modifying the conditions and situations associated with the decision to drink alcohol such as the access to alcohol beverages. According to the Alcohol Control Act 2008, access to alcohol is a major measure to limit alcohol consumption and related adversities. The revision of the Act in 2018 added the lowest age for alcohol purchase of 20 years old to impose the restriction on the access to alcohol upon individuals and providers by the regulatory agents.[26] Our finding of access to alcohol and the alcohol drinking history is consistent with the works of Hemchayat et al[10] and Khondok and colleagues.[23]

Persuasion to alcohol beverages by close friends was associated with alcohol drinking history. According to the TTI, persuasion is an interpersonal/social influence. Adolescents in the same situation are affected by peer or social pressure to follow social norms. Individuals consent to peers such as joining alcohol drinking to gain peer acceptance.[28] Our finding is consistent with the studies of Hemchayat and Yodnil[11] and Hemchayat et al.[10]

Finally, parent's alcohol drinking was a significant predictor of female adolescent's alcohol drinking. This could be one of the imitation behaviors. Adolescents imitate individuals around them. As their role model, adolescents imitate alcohol drinking behavior of their parents either by joining their parents or drinking with individuals outside their families. Adolescents in families with habitual alcohol drinking are more likely to drink alcohol.[29] High school students are the age of imitation, curiosity and trial of new things.[30] Based on the TTI, parent's influence is an interpersonal/social influence which explains that adolescents modify their behavior by imitating close, attached individuals. Our finding is consistent with studies of Hemchayat and Yodnil[11], Hemchayat et al[10] and Ozer and Fernald.[31]

In conclusion, alcohol drinking among female senior high school students in Chonburi province was significantly associated with intrapersonal influences such as stress, and alcohol drinking refusal self-efficacy, and interpersonal/social influences such as persuasion to alcohol drinking, parent's alcohol drinking, access to alcohol beverages, and perception on media advertisement of alcohol beverages. Based on our findings, it is recommended that education institutes should implement training the skill to deny alcohol drinking on various occasions, families, schools and all involved parties should develop activities and campaigns to promote appropriate alcohol drinking for adolescents and all family members, laws on alcohol access restriction should be enforced properly, and schools should monitor stress among students and facilitate activities for stress relief such as sports and recreations. It is also recommended that alcohol drinking behavior in various stages such as hesitancy and trial should be studied in the future to understand more about primary prevention on alcohol drinking among female senior high school students. This is because alcohol consumption is a complicate behavior that needs thorough understanding at each stage. Since this study was a cross-sectional research, cause-effect relationship could not be established with full confidence, future prospective studies are recommended.

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