

Factors Associated with Alcohol Consumption among Senior High School Students in Suphan Buri Province, Thailand: A Cross-Sectional Study

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ABSTRACT

Background: Adolescent alcohol consumption is a growing concern in Thailand. Suphan Buri Province has seen a sharper increase, from 0.01 to 0.09, highlighting regional challenges. Gaps in legislation and enforcement hinder efforts to address underage drinking effectively. This study uses the PRECEDE framework to explore socio-cultural and environmental factors, guiding targeted interventions for central Thailand.

Purpose: The study aimed to identify the factors associated with alcohol consumption among senior high school students in Suphan Buri Province, Thailand.

Methods: This cross-sectional study was conducted among senior high school students in Suphan Buri Province, Thailand, using a multi-stage sampling method to select 364 participants. Data were collected through an online self-administered questionnaire between February and March 2021. Descriptive statistics and Chi-Square tests were employed for data analysis, with the significance level set at $p < .05$. The questionnaire demonstrated strong validity (IOC: 0.67–1.00) and reliability, with Cronbach's Alpha scores of 0.885 for attitudes, 0.911 for media influence, 0.947 for peer conformity, and 0.978 for behavior.

Results: The study analyzed 364 participants (51.1% male, 48.9% female) with an average age of 16.9 years. Most students (63.2%) had a GPA of 3.00–4.00. Alcohol consumption behavior was moderate ($\bar{X} = 3.30$, S.D. = 1.08), with the highest mean score for driving after drinking ($\bar{X} = 3.57$, S.D. = 1.32). Chi-Square analysis revealed significant associations between alcohol consumption and age, academic year, attitudes (predisposing factors), media influence (enabling factor), and peer conformity (reinforcing factor) at $p < .05$.

Conclusion: The findings underscore the influence of age, educational level, attitudes, alcohol media and advertising influence, and peer conformity on alcohol consumption among senior high school students. These insights can guide the development of targeted prevention programs aimed at reducing alcohol use and associated risks in this population.

Keywords: alcohol consumption, risk factors, senior high school students, thai adolescent

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BACKGROUND

Adolescent alcohol consumption is a pressing global public health concern with both immediate and long-term consequences (Lees et al., 2020). Initiating alcohol use at an early age is associated with a higher risk of accidents, injuries, and cognitive impairments, as it disrupts critical brain development during adolescence (Tetteh-Quarshie & Risher, 2023; Quigley et al., 2019). Research consistently indicates that early drinking is linked to negative outcomes, including poor academic performance, increased rates of mental health disorders like depression and anxiety, and a greater tendency to engage in high-risk behaviors, such as violence and unsafe sexual activities (National Institute on Alcohol Abuse and Alcoholism, 2022). Longitudinal studies of Australian adolescents have shown that initiating alcohol consumption before the age of 12 significantly increases the risk of hazardous drinking, while delaying the first drink until age 15 or older is associated with a lower likelihood of early hazardous drinking behaviors, often postponed until after the age of 19 (Gardner et al., 2024). Globally, alcohol is the most commonly consumed substance among adolescents. Over half of 15-year-olds have experimented with alcohol, with 56% of boys and 59% of girls reporting at least one instance of use, and nearly 40% admitting to alcohol consumption in the past 30 days (World Health Organization, 2024). Alarmingly, approximately 1 in 10 adolescents have experienced significant intoxication defined as being drunk at least twice showing a sharp increase from 5% at age 13 to 20% by age 15. These trends reveal a concerning escalation of alcohol misuse as adolescents age, with recent data indicating a rise in drunkenness rates from 5% among 13-year-olds to 15% among 15-year-olds (World Health Organization, 2024).

In Thailand, the trend of adolescent alcohol consumption reflects similar global patterns, with a notable increase in prevalence rates among adolescents aged 15–19, from 0.13 in 2018 to 0.16 in 2024. Specific regions, such as Suphan Buri Province in the Rural Central region, have witnessed an even more dramatic rise in prevalence, from 0.01 to 0.09 during the same period (Ministry of Public Health, Thailand, 2024). Suphan Buri is particularly relevant as a case study due to its unique socio-cultural and economic characteristics, including its predominantly agricultural economy, close-knit rural communities, and varying levels of exposure to national alcohol control policies. These factors may influence adolescent drinking behaviors in ways that differ from urban or other rural areas, making it a compelling focus for targeted interventions.

Despite Thailand's efforts to curb adolescent drinking through legislation, significant gaps persist in the understanding of the laws' effectiveness and the underlying factors contributing to underage drinking. Existing legislation, such as the Alcohol Control Act B.E. 2551 (2008) and the Child Protection Act B.E. 2546 (2003), lacks specific provisions addressing adolescent alcohol consumption and fails to enforce penalties for parental negligence (Nukulki, 2021). Furthermore, in contrast to countries like the United States, which enforce stricter age-based drinking laws, Thailand does not have a clearly defined minimum legal drinking age, potentially diminishing the efficacy of prevention measures (World Health Organization, 2024).

Previous studies in Thailand have predominantly examined broad determinants of adolescent drinking, such as peer influence, socioeconomic factors, and family background (Hosiri et al., 2016; Prasartpornsirichoke et al., 2022). However, these studies often overlook the localized socio-cultural factors that may influence alcohol consumption, especially in specific regions (Pramaunururut et al., 2022). There remains a notable gap in understanding how national policies, regional characteristics, and individual behaviors interact, particularly in rural central Thailand, where social and economic conditions are diverse.

To address these gaps, this study employs the PRECEDE framework (Green & Kreuter, 2005) to explore the factors associated with adolescent alcohol consumption in central Thailand. The PRECEDE framework is particularly suited for this research because it allows for a systematic analysis of how predisposing, reinforcing, and enabling factors at the individual, regional, and national levels interact to shape behaviors. By integrating socio-cultural and environmental determinants, this framework provides a comprehensive approach to identifying the root causes of adolescent alcohol consumption and tailoring interventions accordingly.

Ultimately, the findings of this study will inform the development of culturally relevant, evidence-based interventions that are specifically tailored to the unique context of Suphan Buri. These interventions have the potential to guide future public health strategies in Thailand and similar settings, fostering healthier behaviors and mitigating the long-term consequences of adolescent alcohol consumption.

OBJECTIVE

To identify the factors associated with alcohol consumption among senior high school students in Suphan Buri Province, Thailand.

METHODS

Design

This study is a cross-sectional survey aimed at exploring factors associated with alcohol consumption among senior high school students in Suphan Buri Province. The study is based on the PRECEDE–PROCEED model (Green & Kreuter, 2005). The independent variables include predisposing factors such as gender, age, academic year, GPA, and attitudes toward alcohol. Enabling factors consist of the influence of exposure to alcohol advertisements, while reinforcing factors include peer conformity. The dependent variable in this study is the alcohol consumption of senior high school students in Suphan Buri Province. The sample for this study consists of senior high school students from Suphan Buri Province, Rural Central Thailand. The sample size was determined using Taro Yamane's formula (Taro Yamane, 1973), with a 95% confidence level, resulting in a sample size of 364 participants. A multi-stage sampling method was employed to select participants who consented to take part in the study and had access to a computer or mobile device capable of using Google Forms for data collection.

Data Collection instruments

Data were collected from March to July 2020 using a 62-item an online self-administered questionnaire, with each session lasting 15 to 20 minutes per participant. Prior to data collection, the study objectives were explained, and informed consent was obtained. Surveys were administered in private rooms at schools to ensure participant confidentiality.

Instruments

Section 1: A questionnaire on predisposing factors consisting of 21 items. It includes 4 items on personal information—gender, age, academic year, and GPA—and 17 items related to attitudes toward alcohol. These questions are measured on a 5-point rating scale: strongly agree, agree, unsure, disagree, and strongly disagree. The scoring is as follows:

3.68 – 5.00 points indicate a high level of attitude toward alcohol.

2.34 – 3.67 points indicate a moderate level of attitude toward alcohol.

1.00 – 2.33 points indicate a low level of attitude toward alcohol.

Section 2: A questionnaire on enabling factors, specifically the alcohol media and advertising influence, consisting of 14 items. These questions are measured on a 5-point rating scale: very high, high, moderate, low, and very low. The scoring is as follows:

3.68 – 5.00 points indicate a high level of influence from advertising media.

2.34 – 3.67 points indicate a moderate level of influence from advertising media.

1.00 – 2.33 points indicate a low level of influence from advertising media.

Section 3: A questionnaire on reinforcing factors, focusing on peer conformity, consisting of 15 items. These questions are measured on a 5-point rating scale: regularly, often, sometimes, rarely, and never. The scoring is as follows:

3.68 – 5.00 points indicate a high level of peer conformity.

2.34 – 3.67 points indicate a moderate level of peer conformity.

1.00 – 2.33 points indicate a low level of peer conformity.

Section 4: A questionnaire on alcohol consumption, consisting of 16 items. These questions are measured on a 5-point rating scale: regularly, often, sometimes, rarely, and never. The scoring is as follows:

3.68 – 5.00 points indicate a high level of alcohol consumption.

2.34 – 3.67 points indicate a moderate level of alcohol consumption.

1.00 – 2.33 points indicate a low level of alcohol consumption.

Validity and reliability test of the questionnaire

The questionnaire underwent a thorough evaluation for both content and construct validity. Three experts in juvenile health, a public health instructor, and a nursing instructor reviewed the instrument. Validity was assessed using the Index of Item Objective Congruence (IOC), with scores ranging from 0.67 to 1.00.

The pilot-tested was carried out among 30 respondents in a nearby Province to determine its reliability. The reliability test results using Cronbach's Alpha coefficient. The reliability in each part was as follows: 1) Attitudes toward alcohol was 0.885; 2) Alcohol media and advertising influence was 0.911; 3) Peer conformity was 0.947; and 4) Alcohol consumption behavior was 0.978.

Data Analysis

This study aimed to identify factors associated with alcohol consumption.

- Descriptive Analysis: The data were analyzed using frequency, percentage, mean, and standard deviation to describe the sample's characteristics.
- Relationship Analysis: The associations between predisposing, enabling, and reinforcing factors and alcohol consumption behavior were assessed using the Chi-Square test, with a significance level set at $p < 0.05$.

Ethics consideration

This study was approved by the Human Research Ethics Committee of the College, with approval document number PHCSP-S2563/070. Informed written consent was obtained from all participants in accordance with the ethical principles outlined in the WMA Declaration of Helsinki for medical research involving human subjects (World Medical Association, 2013). The confidentiality of the information provided by the participants and all documentation received from them was anonymous and securely stored in the college data system. Only researchers with a password had access to the data. No monetary incentives were given to the participants.

RESULTS

Demographic characteristic of participants

The total sample consisted of 364 participants: 186 males (51.1%) and 178 females (48.9%). The majority of participants were 17 years old, accounting for 149 individuals

(40.9%). There were 13 participants aged 15 (3.6%) and 5 aged 19 (1.4%), with an average age of 16.9 years, ranging from 15 to 19 years. The sample included 131 students in Grade 10 (36.0%), 117 students in Grade 11 (32.1%), and 116 students in Grade 12 (31.9%). Most students had an academic performance in the GPA range of 3.00 - 4.00, representing 230 individuals (63.2%), followed by 2.00 - 2.99 with 132 individuals (36.3%), and ≤ 1.99 with 2 individuals (0.5%). The average GPA was 3.12, with a maximum of 4.00 and a minimum of 1.00, as shown in Table 1.

Level of alcohol consumption behaviors

The analysis indicated moderate alcohol consumption behavior among the participants ($\bar{X} = 3.30$, S.D. = 1.08). For this study, "moderate alcohol consumption" was operationally defined as engaging in drinking behaviors at a level that does not involve daily drinking or dependence but may include occasional binge drinking or drinking in social situations (World Health Organization, 2018). Item-by-item analysis showed that the highest mean score was for behavior related to driving after drinking alcohol ($\bar{X} = 3.57$, S.D. = 1.32), followed by not refusing alcohol when invited by unfamiliar individuals ($\bar{X} = 3.46$, S.D. = 1.36), and drinking until losing self-control ($\bar{X} = 3.45$, S.D. = 1.41). The lowest mean score was for drinking alcohol during social gatherings or festivals ($\bar{X} = 2.98$, S.D. = 1.36), as shown in Table 2.

Factors associated with alcohol consumption

The Chi-Square analysis examining the relationship between predisposing, enabling, and reinforcing factors and the alcohol consumption behavior of the sample group identified five variables significantly associated with alcohol consumption at the .05 significance level. The significant predisposing factors were age ($\chi^2 = 1.332$, p-value = .001), academic year ($\chi^2 = 21.253$, p-value = .000), and attitudes towards alcohol consumption ($\chi^2 = 138.829$, p-value = .000). The enabling factor identified was the influence of media and advertising ($\chi^2 = 146.395$, p-value = .000), while the reinforcing factor was peer conformity ($\chi^2 = 203.735$, p-value = .000). These findings are summarized in Table 3.

Table 1. Demographic characteristic of participants (n=364)

Demographic characteristic	Number	Percent (%)
1. Gender		
Male	186	51.1
Female	178	48.9
2. Age (year)		
15	13	3.6
16	98	26.9
17	149	40.9
18	99	27.2
19	5	1.4
3. Academic year		
Grade 10	131	36.0
Grade 11	117	32.1
Grade 12	116	31.9
4. Grade Point Average		
≤ 1.99	2	0.5
2.00-2.99	132	36.3
3.00-4.00	230	63.2

Table 2. The level of alcohol consumption among senior high school students in Suphan Buri Province, Thailand (n=364)

Alcohol consumption level	Number	Percent (%)
1. High level (range 3.68 - 5.00)	148	40.7
2. Moderate level (range 2.34 – 3.67)	138	37.9
3. Low level (range 1.00 – 2.33)	78	21.4
\bar{X} = 3.30, S.D. = 1.08, Min = 1.00, Max = 5.00		

Table 3. Factors associated with alcohol consumption among senior high school students in Suphan Buri Province, Thailand (n=364)

Factors	Alcohol consumption				df	χ^2	p-value
	High level		Moderate – Low level				
	Number	Percent	Number	Percent			
Predisposing factors							
1. Gender					1	1.316	.251
Male	81	22.3	105	28.8			
Female	67	18.4	111	30.5			
2. Age (year)					1	1.332	.001
≤ 16	89	24.5	164	45.1			
> 16	59	16.2	52	14.3			
3. Academic year					1	21.253	.000
Grade 10	74	20.3	57	15.7			
Grade 11-12	74	20.3	159	43.7			

Table 3. Factors associated with alcohol consumption among senior high school students in Suphan Buri Province, Thailand (n=364) (cont:)

Factors	Alcohol consumption				df	χ^2	p-value
	High level		Moderate – Low level				
	Number	Percent	Number	Percent			
4. GPA					1	2.058	.151
≤ 2.00	1	1.9	6	1.6			
> 2.00	147	40.4	210	57.7			
5. Attitudes toward alcohol					1	138.829	.000
High level	89	24.5	9	2.5			
Moderate – Low level	5	16.2	27	56.9			

DISCUSSION

This study identified five key factors significantly associated with adolescent alcohol consumption behaviors: predisposing influences (age, academic year, and attitudes toward alcohol), enabling factors (media and advertising influence), and reinforcing factors (peer conformity). These findings confirm the study's original objective of understanding how individual, social, and environmental factors contribute to adolescent drinking patterns.

Age and Academic Year: Age and academic year were found to be crucial predisposing factors. As adolescents mature and progress through higher academic levels,

they encounter increased opportunities for alcohol consumption due to greater autonomy, exposure to diverse social settings, and heightened susceptibility to peer influence. Habib et al. (2023) highlighted that older adolescents, particularly those aged 16 ± 2 years, are more prone to alcohol use due to developmental changes and evolving social contexts. Similarly, Mmereki et al. (2022) and Treloar et al. (2019) supported these findings, indicating that older adolescents are more likely to engage in risky behaviors, including drinking, as they seek independence and align themselves with older peer groups. This trend underscores the importance of addressing developmental and social changes as adolescents advance in age and academic year.

Attitudes Toward Alcohol: Attitudes toward alcohol were significant predictors of drinking behavior, revealing how personal beliefs can directly shape actions. Adolescents with more permissive attitudes toward alcohol are at higher risk for consumption. Waldron et al. (2021) emphasized the influence of attitudes, finding that those who viewed alcohol use positively or neutrally were more likely to drink. Nixon et al. (2022) confirmed this, showing a direct correlation between favorable attitudes and increased consumption. In Thailand, efforts to shift attitudes through educational programs, public media campaigns, and stricter government policies on advertising and liquor sales have shown potential in reshaping adolescent drinking behaviors (Panya & Traprasit, 2024). These findings underscore the need for targeted interventions that modify adolescent attitudes toward alcohol.

Media and Advertising Influence: Exposure to alcohol-related content in media and advertising plays a significant enabling role in adolescent drinking. Alcohol advertisements often glamorize consumption, presenting it as desirable and socially acceptable, which can lead to increased drinking behaviors among adolescents. Nagata et al. (2023) highlighted how media normalizes drinking, especially in contexts with limited advertising restrictions. Gupta et al. (2018) and Reisdorfer et al. (2023) provided further evidence that exposure to alcohol marketing leads to more favorable attitudes toward drinking, thereby increasing the likelihood of consumption. These findings suggest that stricter regulation of alcohol advertisements targeting adolescents is necessary to mitigate their influence on youth behaviors.

Peer Conformity: Peer influence emerged as the most significant reinforcing factor, underscoring the importance of social dynamics in shaping adolescent alcohol consumption. Adolescents often seek validation from peers, which can lead them to mirror similar behaviors, including drinking. Laursen et al. (2021) and Liu et al. (2023) demonstrated that peer pressure is one of the strongest predictors of adolescent drinking, while Musomboli et al. (2023) noted that adolescents who perceive drinking as common among peers are more likely to consume alcohol. Furthermore, Meisel et al. (2022) highlighted the impact of social media, showing that peer behavior and online alcohol content significantly influence adolescents' drinking intentions and behaviors over time. These findings indicate that prevention programs should focus on modifying peer group dynamics, fostering healthy social interactions, and offering alternatives to alcohol-centered gatherings.

Adolescents are influenced by a combination of individual attitudes, social exposures, and developmental changes, which all contribute to drinking behavior (Watts et al., 2024). Effective strategies should address both personal and environmental influences, recognizing the interconnected nature of these factors. Programs should combine educational efforts, media regulations, and social support mechanisms to comprehensively reduce alcohol consumption among adolescents.

These findings provide valuable insights into the complexities of adolescent alcohol consumption, emphasizing the importance of a holistic approach. Future research should

explore the long-term effects of these factors on drinking behaviors and investigate the effectiveness of tailored interventions across different cultural and socioeconomic contexts. This study lays a foundation for evidence-based strategies that address the multifaceted influences on adolescent alcohol consumption, with the goal of promoting healthier behaviors and reducing alcohol-related risks among youth.

The findings of this study have several important implications for the design of adolescent alcohol prevention programs. Since age, academic year, attitudes toward alcohol, media exposure, and peer influence are significant predictors of alcohol consumption, prevention programs should adopt a comprehensive approach that addresses these factors. Educational initiatives should be integrated into school curricula to raise awareness about the risks of alcohol use and promote healthy alternatives. These programs should also involve parents and teachers to improve their understanding and enhance their ability to guide adolescents effectively. Moreover, stricter regulations on alcohol advertising, especially those targeting younger audiences, are necessary to counter the glamorization of alcohol in the media. Peer influence, a major reinforcing factor, can be addressed through peer-led interventions and mentorship programs that encourage adolescents to adopt alcohol-free behaviors and engage in positive social interactions. Collaboration between schools, local governments, and community organizations will create a supportive environment conducive to healthy adolescent development.

While this study provides valuable insights, it has several limitations. The geographical focus on Suphan Buri limits the generalizability of the findings to other regions with potentially different social and cultural dynamics. Additionally, the cross-sectional design of the study restricts the ability to draw causal conclusions. Self-reported data may also introduce biases, and the study did not account for other potential influencing factors, such as family dynamics or mental health issues. Future research should address these limitations by utilizing longitudinal designs and considering a wider range of factors that may impact adolescent alcohol consumption. Exploring culturally relevant, long-term strategies tailored to various socioeconomic contexts is crucial for reducing alcohol-related risks among youth.

CONCLUSION

This study highlights the significant factors associated with alcohol consumption among senior high school students in Suphan Buri Province, Thailand. The findings demonstrate that age, academic year, attitudes toward alcohol, exposure to alcohol advertisements, and peer conformity play crucial roles in influencing drinking behavior. These findings justify targeted interventions focusing on both individual attitudes and broader social influences. For nursing practice, integrating alcohol education in schools and collaborating with parents and teachers is recommended. Future efforts should include culturally relevant strategies that address media and peer influences, along with longitudinal studies to evaluate intervention effectiveness.

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CONFLICTS OF INTEREST

The author(s) declare no conflicts of interest in this research.

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