

The prevalence of alcohol consumption during early adolescence: a cross-sectional study in an eastern province, Thailand

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ABSTRACT

This cross-sectional study identified and described the prevalence of alcohol consumption among early adolescents (10–14 years). The participants were 9,509 early adolescents from Chonburi province, Thailand. Of all the adolescents, 31.01% had experience with alcohol drinking, while the current drinkers were 10.94%. Girls were more likely to drink and the amount of current drinkers increased with age ($p < 0.001$). Adolescents living with divorced family, single parents and neither close to both of their parents were more likely to drink in the past year ($p < 0.001$). The starting age for drinking was 11.31 years \pm 1.82; boys were younger (10.97 years) than girls (11.55 years). Alcohol consumption tends to be quite high in Thai's early adolescents, especially girls. This study can inform parents, health care providers, school directors, and local administrative organizations, for addressing alcohol prevention activities, increasing efforts to delay and to reduce early alcohol use.

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Introduction

Adolescence is a period of life with important psychological and physical changes. Within this critical transitional period, youngsters might experience new things and enjoy spending time with their friends (Steinberg, 2005). Accordingly, various forms of risk behaviour initiate in this period of life (Cromer, 2011). Alcohol consumption is very common across diverse population groups and has been served for multitudinous purposes. In many countries daily alcohol use is common, mostly served with meals. Recent research has revealed that alcohol drinking among adolescents' is also a major concern (Hongthong & Areesantichai, 2014; Kelly et al., 2012). Alcohol use at young age represents their maturity and socialization but alcohol has also been used to escape problems among the youth (Patrick, Schulenberg, O'malley, Johnston, & Bachman, 2011; Thomas et al., 2010) which brings them countless adverse outcomes.

Multiple Thai research data sources as well as the national survey of drinking behaviours and other health-risk behaviours substantiated that the proportion of underage drinkers is high (Assanangkornchai, Mukthong, & Intanont, 2009; Assanangkornchai, Mukthong, & Samangsri, 2008; Assanangkornchai,

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Sam-Angsri, Rerngpongpan, & Lertnakorn, 2010; Chaveepojnkamjorn & Pichainarong, 2011; Kittipichai, Sataporn, Sirichotiratana, & Charupoonphol, 2012). The estimated prevalence of alcohol consumption varies from 20 to 35% for middle to late adolescence (The National Statistical Office of Thailand, 2012, 2014). A study carried out in central Thailand among vocational school students aged between 16 and 20 years old found that 40.9% of male and only 20.9% of the female students had experience with alcoholic beverages (Chaveepojnkamjorn, 2012). Assanangkornchai et al. (2009) found that prevalence of alcohol use seemed to increase significantly among male adolescents (30.5%) compared to female youngsters (18.2%). A recent study of female students aged between 12 and 17 years old found that approximately half of female high school students had ever drunk an alcoholic beverage (Kittipichai et al., 2012). Furthermore, the results of previous studies carried out among early to late stage adolescents pointed out that they started to drink between the ages of 6 and 14 years old (Kittipichai et al., 2012; Onmoy, 2011).

Alcohol consumption is a considerable negative behaviour especially among young people. More important, there is increasing evidence that alcohol drinking caused an explosive short and long term negative impact on adolescent's health (Marshall, 2014). Alcohol drinking can cause serious somatic complications such as aspiration of vomit and alcohol poisoning (Assanangkornchai et al., 2009; Centers for Disease Control & Prevention (CDC), 2010; Miller, Naimi, Brewer, & Jones, 2007; Bonnie & O'Connell, 2004). As shown in previous research, drinking in the early stage of adolescence was particularly related to risk behaviours (Chaveepojnkamjorn & Pichainarong, 2011; MacArthur et al., 2012; Ruangkanhasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005; Sam-angsri, Assanangkornchai, Pattanasattayawong, & Muekthong, 2010; Sirirassamee & Sirirassamee, 2015). Those drinking were more likely supposed at unprotected or unwanted sexual activities leading to an increased risk of unintended teenage pregnancy (Bellis et al., 2009; Chaveepojnkamjorn & Pichainarong, 2011; World Health Organization, 2014) and sexually transmitted diseases (Bellis et al., 2009; MacArthur et al., 2012; Naimi et al., 2003; Standerwick, Davies, Tucker, & Sheron, 2007). Another noticeable feature is that, drinking may lead to violent, aggressive and suicidal behaviour (Chaveepojnkamjorn & Pichainarong, 2015; Englund, Egeland, Oliva, & Collins, 2008; Naimi et al., 2003).

Additionally, alcohol drinking has direct effects on the brain (Tapert, Caldwell, & Burke, 2004/2005) and reduces self-control and the capability to drive. The probability of road accidents is predominantly higher while driving under the influence of alcohol (Chaveepojnkamjorn & Pichainarong, 2011; Evans-Whipp et al., 2013; Morleo, Cook, Bellis, & Smallthwaite, 2010). Consequently, alcohol is an important cause of casualties and disabilities appearing during this period of life (Minino, 2010; Panbaudee & Nitis, 2010). Moreover, a large body of literature confirmed that early drinkers were more likely to be associated with other hazardous illness and long term impact (World Health Organization, 2014) such as increasing the potential of hazardous drinking patterns (Harker Burnhams, Parry, Laubscher, & London, 2014), alcohol dependence (Alvanzo et al., 2011; Delcher, Johnson, & Maldonado-Molina, 2013; Liang & Chikritzhs, 2015; MacArthur et al., 2012; Marshall, 2014; McCambridge, McAlaney, & Rowe, 2011) and chronic liver disease (Naimi et al., 2003; Jürgen Rehm, 2011; J. Rehm et al., 2010; Turati et al., 2014).

In the past decades, while many retrospective studies concerned alcohol-related issues as the prevalence of teenage drinking, drinking patterns and alcohol preventive programs among adolescents in later adolescence, relatively little studies focus on alcohol consumption patterns among early adolescence (10–14 years old). There is a paucity of information on alcohol use at an early age in Thailand and on the prevalence of drinking among young people. Additional, one of the important conditions to create an effective alcohol preventive program for adolescents is to understand the characteristics and behaviours of the included youngsters.

Early identification and detection of adolescent's drinking behaviour may be productive in preventing and attenuating hazard in short and long term. Thereby, this study tries to fill the gap in the knowledge on prevalence of alcohol consumption among early adolescence in Thailand. The findings would have a beneficial effect on adolescents' health by developing future alcohol preventive policies and strategies among those teenagers. In addition, the aim of this study was to identify and describe the prevalence of alcohol consumption among Thai early adolescents (10–14 years of age).

Methodology

Design and setting

A cross-sectional survey addressed the gap in understanding alcohol use patterns among adolescents in their early-stage of adolescence (10–14 years). The study was performed in the Chonburi province in the eastern part of Thailand, located 80 kilometres east of Bangkok. Chonburi population size is 1,470,964 while the adolescents (10–24 years of age) are accounting for 320,173 of the total population (Department of Provincial Administration Registration, 2016). The gross provincial product (GPP) per capita has been ranked the second highest in the region and third in Thailand accounting for 491,971 Bath (15,589 \$) per year. The gross domestic products (GDP) of the whole kingdom is 203,356 Bath per year (The Office of the National Economic & Social Development Board (NESDB), 2015). Chonburi has been well known as a touristic attractive area on the Gulf of Thailand. Many pubs, bars, and restaurants are situated in this area.

Participants

A representative sample of early-stage adolescents was selected from a population of 91,112 early adolescents (10–14 years of age). Sample size was calculated by applying the technique of Krejcie and Morgan (1970). The calculation was based on $p = 0.05$ where the probability of committing type I error is less than 5% $p < 0.05$, 95% confidence intervals, the population proportion was assumed to be 0.05 since this would provide the maximum sample size and desired Margin of Error was expressed as proportion 0.01 (James E. Bartlett, Kotrlik, & Higgins, 2001; Krejcie & Morgan, 1970). The sample size consisted of 9,509 10 to 14 years old boys and girls, divided in five age groups.

A multi-stage random sampling method was adopted in sample selection. In the first stage, all districts ($n = 11$) in Chonburi province were included in the study. Then, the sample proportion in each district was calculated considering the early adolescent population in each district and the total early adolescents population. Afterwards, the districts were divided into four regions (1) large size region with more than 10,000 adolescents ($n = 3$), (2) medium size between 5000 and 9999 adolescents ($n = 3$), (3) Small size between 1000 and 4999 adolescents ($n = 4$) and Very small (island) $< 1,000$ adolescents ($n = 1$).

The sub-districts were selected at random by using the size of districts as follows (1) four sub-districts from the large districts, (2) three sub-districts from the medium districts, (3) two sub-districts from the small districts and (4) one sub-districts being the island. In total, thirty sub-districts were included in the second stage. In the third stage, the communities or villages where adolescents lived were randomly selected without replacement. Consequently, the adolescents who lived in the community and studied in the local school were randomly selected and invited to participate in the project. Each age group was equally represented.

Research instruments

The questionnaire was developed by the researchers through literature review. The questionnaire wording was modified to ensure the comprehensibility by the age group. Afterwards, three experts rated each question in the questionnaire in terms of relevance to the underlying constructs or the component of the study. Then, the preliminary draft of the questionnaire with response forms was sent to an expert panel to quantify the CVI of the instrument. Each reviewer independently rated the relevance of each item to the conceptual framework using a 4-point Likert scale (1 not relevant to 4 very relevant). Finally, the item-level content validity index (I-CVI) and scale-level content validity index (S-CVI) were calculated by the number of experts who evaluated the item as not relevant or very relevant (Polit & Beck, 2006; Yaghmaie, 2003). We considered an index > 0.80 as adequate for the S-CVI (Polit & Beck, 2006). For the final revision of the questionnaire, minor formatting and wording changes were ought to make following to the recommendations of the experts. In addition, the questionnaire was piloted with the help of 30 adolescents prior to the start of study. Subsequently, the questionnaire was finalized.

To describe the demographics, participants had to fill in their age, gender, education level, grade point average (GPA), religion, parents' marital status, housing, strength of family relationship ties, and the persons whom the participants were most likely close to. Additionally, the strength of family relationship ties was rated on a 4-point scale (1 weak to 4 strong).

Throughout this paper, the categories of alcohol use were consistently described with WHO guideline (D. A. Dawson, 2003; Deborah A. Dawson & Room, 2000; Greenfield, 2000; World Health Organization Department of Mental Health & Substance Dependence, 2000). The term 'lifetime abstainers' refers to adolescents, who had never drunk more than just a few sips of alcohol in their lifetime. The former drinkers are people who had ever consumed alcohol more than just a few sips in at least one year but not in the past year. Besides, current drinkers are people who had consumed more than just a few sips in the past year. One standard drink in this study is defined as one can of beer (~330 cc), one glass of wine (~100 cc), small glass of whiskey or spirits (~30 cc) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001).

All participants were asked 'Have you ever drunk alcohol? (more than just a few sips)'. Responses were trichotomously divided into no drink alcohol in at least one year but not in the past year and have drunk during the past year. Afterwards, the lifetime abstainers and former drinkers were asked to report the reasons why they don't want to drink or why they stopped to drink. According to alcohol consumption all current drinkers were asked about drink behaviours, including experience of their first drink (age at first drink, reasons of drink, kinds of alcohol and first drink accessibility), drinking contexts (the most popular alcoholic beverage, location of drinking, person who drink with and occasion), alcohol accessibility, frequency, quantity of alcohol use in the last 30 day, drinking consequences and risk behaviour (sexual behaviour, riding in the last 30 day, driving in the last 30 day and accident in the last 30 day).

Regarding to the drinking consequences the current drinkers were asked to report their experience after alcohol drinking such as the somatic complications, criminal behaviour, violent and aggressive (yes, no, don't know). Respondents were asked if they had any sexual behaviour after drinking alcohol. Responses were dichotomized into yes versus No. Afterwards, adolescents answering yes were ask if they had intention to have sex and used protection for that behaviour. Furthermore, the respondents were asked 'During the past 30 days, after drinking alcohol, how many time have you ridden a motorcycle or driven a car?' and 'During the past 30 days, how many moto vehicle-related accidents occurred after you had drank alcoholic beverages?'. Responses were treated as a continuous variable.

Data collection procedure

Firstly, the community nursing, the school teacher and community leader were asked for co-operation with the study using an introductory letter explaining the project. After acceptance, they were asked to inform and ask participation from the adolescents in their community. Subsequently, they trained according to the project aims and data collection, and how to deal with eventual problems. The research teams invited the adolescents, who lived or studied in the participating communities. When the adolescents agreed to participate in the study, their parents had to complete the informed consent letter. All participants personally completed the questionnaire taking them 30–40 min. The importance of completion of the questionnaire was accentuated.

Ethical considerations

The Ethical Committee for Social Sciences and Humanities (EA SHW), University of Antwerp (SHW_16_30) approved the study. Before distribution of the survey, participants were informed on the objectives and risks of the study. After written informed consent, obtained from the parents or guardians, adolescents filled in a short demographic questionnaire. To improve reliability, adolescents were guaranteed anonymity and asked not to report names or other means of identification. The participants were also informed that they were allowed to stop participating in the survey at any time they wished without either of them losing any of their rights whatsoever.

Statistical analysis

The Statistical Package for Social Sciences (SPSS 24) was used for analysis. After assessment of normality by using Kolmogorov-Smirnov and Shapiro-Wilk tests, non-normality distributions were found in age and drink quantities and frequencies. Thereby, nonparametric statistics were used to analyse these data. Descriptive statistics were used to explore the personal characteristics, experience of their first drink, drinking contexts, alcohol accessibility, drinking consequences and risk behaviour and present it in the form of frequency, mean and standard deviation. In addition, univariate analysis was performed by using the Pearson's Chi-square test to find differentiate between each drinking categories and personal characteristics. Furthermore, Mann Whitney-U test for two and Kruskal Wallis-H tests were conducted to determine whether the personal characteristics were each significantly related to quantities and frequencies of alcohol drinking. P-values less than 0.05 were considered statistical as significant.

Results

Personal characteristics

The sample consisted of 9,509 adolescents living in Chonburi province, Thailand. Half of them (55.28%) were girls and the majority were Buddhists (95.05%). The average age of the respondents was 12.07 years (SD = 1.42) with a variation from 10 to 14 years. Over two – third of the adolescents (65.65%) reported that their parents were married or remarried and 62.52% came from the families where both parents lived together. Most participants (72.07%) had slightly strong family ties and over a half (60.68%) had a close relationship with both of their parents. Approximately half (58.10%) of them attended elementary school and 24.71% had an excellent grade point average. However, almost half of them (45.99%) could not remember their grade point (Table 1).

The prevalence of alcohol drinking

Tables 1 and 2 show that 31.01% of the adolescents consumed alcohol. Most youngsters were lifetime abstainers ($n = 6,560$; 68.99%); 1,909 (20.07%) were former drinkers and 1,040 (10.94%) were current drinkers. Over half of the current drinkers were girls (55.28%) and had drunk alcohol in the last 30 days preceding the survey (57.50%) whereas almost three quarters (71.34%) were adolescents aged between 13 and 14 years old. Similar percentages were found in the two youngest age groups (10 and 11 years of age) while the 14 years old age group had the highest prevalence among current drinkers (22.21%) compared with all five age groups.

There was a significant association between gender and current drinker ($\chi^2 = 14.20$, $p < .001$). Therefore, girls (55.28%) were more likely to drink alcohol in the previous year than boys (44.71%) were. In addition, there was a significant association between age and the prevalence of current drinker ($\chi^2 = 779.57$, $p < 0.001$). This prevalence increased with age, from 3.36% in 10-years old adolescents to 43.26% in 14-years old adolescents.

One fifth of the adolescents (20%) with a poor grade point average were current drinkers. From the Christian and Buddhist adolescents respectively 11.50% and 11.14% were current drinkers, while the prevalence of current drinkers of Islam was much lower (5.59%). The prevalence of current drinkers was higher among the adolescents living with divorced parents (13.23%), in comparison with those who were living with married parents (9.77%). Adolescents living with their father were more current drinkers (15.88%) in contrast to those living with both of their parents (10.03%). The prevalence of alcohol use among adolescents who have slightly strong to strong family relationship and slightly weak to weak family relationship was nearly the same compared to that of lifetime abstainers (69.42% and 62.37%, respectively). While the prevalence of alcohol use among current drinkers with slightly weak to weak family relationship (15.42%) was higher than those with slightly strong to strong family relationship (10.64%). The prevalence of alcohol use in adolescents who were neither close to both of their parents was high (16.38%).

Table 1. The personal characteristics and the difference of proportions (Chi-square test) between each patterns of alcohol consumption.

Variables	Lifetime abstainers	Former drinkers	Current drinkers	Total ^a	χ^2	p-value
	n = 6560	n = 1909	n = 1040	n = 9509		
	F (%)	F (%)	F (%)	F (%)		
Education levels					659.88	<.001
Elementary school	4356 (78.84)	857 (15.51)	312 (5.65)	5525 (58.10)		
High school	2204 (55.32)	1052 (26.41)	728 (18.27)	3984 (41.90)		
Grade point average					232.19	<.001
Poor	60 (50.00)	36 (30.00)	24 (20.00)	120 (1.26)		
Low	492 (56.75)	250 (28.84)	125 (14.42)	867 (9.12)		
Good	1083 (60.20)	442 (24.57)	274 (15.23)	1799 (18.92)		
Excellent	1624 (69.11)	421 (17.91)	305 (12.98)	2350 (24.71)		
Can't remember	3301 (75.49)	760 (17.28)	312 (7.13)	4373 (45.99)		
Religion					35.55	<.001
Buddhism	6187 (68.46)	1844 (20.40)	1007 (11.14)	9038 (95.05)		
Christianity	75 (66.37)	25 (22.12)	13 (11.50)	113 (1.19)		
Islam	298 (83.24)	40 (11.17)	20 (5.59)	358 (3.76)		
Parents' status					28.77	<.001
Married or remarried	4412 (70.67)	1221 (19.56)	610 (9.77)	6243 (65.65)		
Divorced or separated	1566 (64.74)	533 (22.03)	320 (13.23)	2419 (25.44)		
Widowed	169 (69.26)	47 (19.26)	28 (11.48)	244 (2.57)		
Don't know	413 (68.49)	108 (17.91)	82 (13.60)	603 (6.34)		
Housing					31.86	<.001
Parents	4202 (70.68)	1147 (19.29)	596 (10.03)	5945 (10.03)		
Mother	950 (66.43)	299 (20.91)	181 (12.66)	1430 (15.04)		
Father	390 (61.32)	145 (22.80)	101 (15.88)	636 (6.69)		
Relative	912 (67.51)	294 (21.76)	145 (10.73)	1351 (14.21)		
Guardians	106 (72.11)	24 (16.33)	17 (11.56)	147 (1.55)		
Strength of family relationship ties					57.97	<.001
Weak	92 (75.41)	18 (14.75)	12 (9.84)	122 (1.28)		
Slightly weak	276 (58.97)	113 (24.15)	79 (16.88)	468 (4.92)		
Slightly strong	4652 (67.88)	1433 (20.91)	768 (11.21)	6853 (72.07)		
Strong	1540 (74.54)	345 (16.70)	181 (8.76)	2066 (21.73)		
Persons whom the participants are most likely close to					632.81	<.001
Mother/Grandma/ Female Guardian	1647 (67.72)	519 (21.34)	266 (10.94)	2432 (25.58)		
Father/Grandpa/ Male Guardian	538 (64.28)	194 (23.18)	105 (12.54)	837 (8.80)		
Close to both	4088 (70.85)	1090 (18.89)	592 (10.26)	5770 (60.68)		
Neither of them	287 (61.06)	106 (22.55)	77 (16.38)	470 (4.94)		

^aPercentage by column based on total of adolescent's data.

Table 2. Prevalence of alcohol drinking in the total sample as a function of sex and age.

Drinking experienced	Age group (years)							
	Total	Boys	Girl	10	11	12	13	14
	n = 9509	n = 4776	n = 4733	n = 1854	n = 1688	n = 1919	n = 2022	n = 2026
	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)
Lifetime abstainers	6560 (68.99)	3332 (69.77)	3228 (68.20)	1625 (87.65)	1346 (79.74)	1348 (70.24)	1205 (59.59)	1036 (51.14)
Former drinkers	1909 (20.07)	979 (20.50)	930 (19.65)	194 (10.46)	261 (15.46)	389 (20.27)	525 (25.96)	540 (26.65)
Current drinkers	1040 (10.94)	465 (9.74)	575 (12.15)	35 (1.89)	81 (4.80)	182 (9.48)	292 (14.44)	450 (22.21)

Additionally, significant associations were shown among alcohol use and education level, grade point average, religion, parents' status, housing, strength of family relationship tie and the person whom the participants were most likely close to ($p < 0.001$) (Tables 1 and 2).

Experience of first drink

From 1,040 current drinkers, 853 of them (82.02%) reported their age of first drink. Fifteen adolescents (1.44%) reported their first alcohol use at the age of 6. The mean age was 11.31 years ($SD = 1.82$) with a variation from 6 to 14 years. More boys (27.74%) than girls started to drink between the age of 6 and 10 ($\chi^2 = 5.33, p = 0.25$). In contrast, at the age of 11 years and older, the prevalence of alcohol use was markedly higher in girls (67.13%, $\chi^2 = 5.05, p = 0.16$). Furthermore, this comparison showed a difference between age of first drink of boys (57.91%) and girls (42.09%). There were significant gender differences in the age of first drink. Boys ($M = 10.97$ years ± 1.98) were statistically more likely to drink at the younger age than girls ($M = 11.55$ years ± 1.64), $t(851) = 4.59, p < 0.001$.

Adolescents of both genders reported their first alcohol was offered by friends (boys 35.32% and girls 43.65%) and most frequently the first alcoholic beverage was beer (36.25%). Adolescents indicated multiple reasons for their first alcohol drinking. They first tried alcohol because of curiosity (44.33%), no specific reason (13.08%), tasty (8.46%), unintentionally (8.17%), to be mature (7.69%), to be like peers (6.92%), to socialize (3.56%), follow family members (3.37%) and other reasons (1.73%) (Table 3).

Drinking context and alcohol accessibility

Beer was the most favourite (23.85%) alcoholic beverage of the current drinkers. Both girls and boys preferred to drink alcohol at home and relative's home (45.30%) and less at a friend's home (29.13%). Youngest adolescents from 10 to 12 years old age groups (13.75%) were more likely to drink at home, while 13–14 years old (41.05%) preferred to drink at a friend's home. Both boys and girls consumed alcoholic beverages most often with friends (20.29% of boys and 30% of girls), followed by with other family members (10.77% of boys and 12.60% of girls) $\chi^2 = 10.36, p = 0.06$.

Nearly two – thirds (64.44%) bought alcoholic beverages themselves and over half (52.41%) bought alcoholic beverages at a convenience store. The majority of the non-purchasers (63.42%) stated that they mostly consumed alcohol at their home. Also, 44.44% of purchasers consumed alcohol at their home and 37.96% drank at friends' home. The most of those purchasers were girls (61.85%), and over half were 14 years old. Sadness or disappointment was the most important situation to drink alcohol for 74.78% of the girls and 71.83% of the boys (Table 4).

Frequency and quantity of alcohol drinking in the previous 30 days

Overall, 975 (93.75%) of 1,040 current drinkers reported frequency and quantity of alcohol use in the previous month. The mean frequency was 1.91 days ($SD = 3.44$) with a variation from 1 to 30 days. Among the previous month drinkers, the frequency of alcohol use was higher in girls (23.9%) and those aged 14 years (33.21%) who drank 1–3 days. Besides, 0.41% ($n = 4$) of them drank almost every day (>20 days in 30 days) (Figure 1).

Figure 2 shows the quantity of drinking in the previous 30 days among past-year drinkers. Nearly two-fifths (39.38%) had drunk between 1–3 drinks, 24.82% and 15.59% of girls and boys, respectively: mean 1.85 drinks ± 3.12 . Most of high school and elementary school adolescents reported that they had never drunk in the previous 30 days. However, the comparisons between each category of the quantity of drink indicated that 1–3 drinks per day was outstandingly (72.05%) than the other.

Quantity and frequency of drink were greater for girls ($Mdn = 1.09$ and 1.00, $IQR = 2.58$ and 2.21) than for boys ($Mdn = 0$ and 0, $IQR = 3.00$ and 2.00), $U = 107,110$ and 104,401.5, $p \leq 0.01, r = .07$ and $.09$. In addition, the drinking quantity and frequency were greater in high school level ($Mdn = 1.07$ and

Table 3. Distribution of current drinker in the previous year according to variables related to first contact with alcohol by genders.

Variables	Boys <i>n</i> = 465		Girls <i>n</i> = 575		Total <i>n</i> = 1040	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Age of first drink (<i>M</i> = 11.31+1.81)						
6 years	11	2.37	4	0.70	15	1.44
7 years	17	3.66	15	2.61	32	3.08
8 years	18	3.87	13	2.26	31	2.98
9 years	27	5.81	16	2.78	43	4.13
10 years	56	12.04	60	10.43	116	11.15
11 years	61	13.12	82	14.26	143	13.75
12 years	86	18.49	151	26.26	237	22.79
13 years	60	12.90	125	21.74	185	17.79
14 years	23	4.95	28	4.87	51	4.90
Does not recall	106	22.80	81	14.09	187	17.98
Alcoholic beverages' accessibility at first drink ^a						
Share with friends	142	35.32	227	43.65	369	40.02
Pick up it from home	80	19.90	110	21.15	190	20.61
Buy it themselves	70	17.41	75	14.42	145	15.73
From parents	33	8.21	36	6.92	69	7.48
From family member	35	8.71	32	6.15	67	7.27
Siblings	25	6.22	22	4.23	47	5.10
From someone (Unspecified)	13	3.23	10	1.92	23	2.49
From neighbors	4	1.00	6	1.15	10	1.08
Boy/girlfriends	0	0.00	2	0.38	2	0.22
Types of alcoholic beverages consumed at first drink						
Beer	196	42.15	181	31.47	377	36.25
Sparkling wine drink	68	14.62	160	27.83	228	21.92
Does not recall	75	16.13	64	11.13	139	13.37
Alcohol shake/Alcoholic smoothies	36	7.74	81	14.09	117	11.25
Distilled beverage	56	12.04	47	8.17	103	9.90
Grape wine/Champagne	27	5.81	35	6.09	62	5.96
Cocktail	7	1.51	7	1.22	14	1.35
Reasons why young people first tried alcohol						
Curiosity	198	42.58	263	45.74	461	44.33
No reason	74	15.91	62	10.78	136	13.08
Like the test	37	7.96	51	8.87	88	8.46
Unintentionally	33	7.10	52	9.04	85	8.17
To be mature	27	5.81	53	9.22	80	7.69
Follow friend	32	6.88	40	6.96	72	6.92
Socializing	18	3.87	19	3.30	37	3.56
Follow family member	20	4.30	15	2.61	35	3.37
Thirsty	16	3.44	12	2.09	28	2.69
For good appetite	10	2.15	7	1.22	17	1.63
To be confident	0	0.00	1	0.17	1	0.10

^aMissing 118 cases.

1.00, *IQR* = 2.59 and 3.00) than in elementary level (*Mdn* = 0 and 0, *IQR* = 1.94 and 1.00), *U* = 88,073 and 85,007.5, *p* ≤ 0.01, *r* = 0.09 and 0.1.

A Kruskal-Wallis H test showed a statistically significant difference in quantity and frequency of alcohol consumption among the five groups ($\chi^2 = 20.88$ and 21.25, *p* < 0.001) with a mean rank quantity and frequency of consumption of 401.67–398.23 for 10-year-old adolescents, 479.16–479.31 for 11-year-old adolescents, 429.78–429.58 for 12-year-old adolescents, 479.39–480.47 for 13-year-old adolescents and 526.67–526.31 for 14-year-old adolescents. According to GPA, religion, parents' marital status, living status, strength of family relationship ties and persons whom the participants were most likely close to, no significant differences in both frequency and quantity of alcohol consumption were shown.

Table 4. Distribution of current drinker in the previous year according to drinking context variables by gender.

Variables	Boys <i>n</i> = 465		Girls <i>n</i> = 575		Total <i>n</i> = 1040	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
The favorite alcoholic beverage preference consumed						
Beer	138	29.67	110	19.14	248	23.85
Sparkling wine drink	81	17.42	157	27.30	238	22.88
No favorite items	108	23.23	92	16.00	200	19.23
Alcohol shake/Alcoholic smoothies	50	10.75	96	16.70	146	14.04
Distilled beverage	51	10.97	65	11.30	116	11.15
Grape wine/Champagne	34	7.31	42	7.30	76	7.31
Cocktail	3	0.65	13	2.26	16	1.54
The places where alcoholic beverage is mostly consumed						
At home/relative home	203	43.65	268	46.61	471	45.30
At friend's home	124	26.67	179	31.13	303	29.13
Does not recall	80	17.20	70	12.17	150	14.42
Parties/Restaurant/Bar	31	6.67	31	5.39	62	5.96
In a park	20	4.30	18	3.13	38	3.65
School	7	1.51	9	1.57	16	1.54
Situations when alcohol is mostly consumed						
Sad/Disappointed	334	71.83	430	74.78	764	73.46
For fun	53	11.40	73	12.70	126	12.12
Unspecified	78	16.77	72	12.52	150	14.42
The person whom alcoholic beverage is mostly consumed with						
Friends	211	45.38	312	54.26	523	50.29
Other family member	112	24.09	131	22.78	243	23.37
Does not recall	69	14.84	60	10.43	129	12.40
Parents	55	11.83	52	9.04	107	10.29
Alone	15	3.23	16	2.78	31	2.98
Neighborhoods	3	0.65	4	0.70	7	0.67
Places where alcohol is mostly purchased ^a						
Convenience store	99	48.06	184	55.09	283	52.41
Local Grocery store	84	40.77	122	36.53	206	38.15
Restaurant, Pub, night club	23	11.17	28	8.38	51	9.44

^aDoes not make a purchasing alcohol themselves 298 (35.56%), missing 202 cases.

Drinking consequence

Within the group of 1,040 previous-year-drinking participants, at the time they were interviewed, 286 adolescents reported that the problems after drinking alcohol were 'vomiting' (27.5%), followed by 'low score/grades' making up (12.31%) (Table 5).

Risk behaviour after alcohol drinking

According to the risk behaviour, 4.23% (*n* = 44) of the sample (*n* = 1,040) reported having sexual intercourse after alcohol use (boys 72.72%, girls 27.27%; $\chi^2 = 14.58, p < 0.001$). Among the adolescents who had sexual intercourse, the older the adolescents were more frequently reported having sexual intercourse than the younger adolescents, which gradually increased from 2.27% in those aged 12 years old to 68.18% in those aged 14 years old ($\chi^2 = 17.83, p = 0.001$). Most of them reported intentional sexual intercourse (*n* = 23; 53.48%) while 46.51% (*n* = 20) had unintentional sexual intercourse. Boys were more likely to have intentional sexual intercourse than girls (boys 82.60%, girls 17.39%; $\chi^2 = 2.71, p = 0.09$). One third (*n* = 15; 35.71%) reported unprotected sexual activities whilst the highest percentage was among boys (*n* = 13; 86.67%) compared with girls (*n* = 2; 13.33%).

Overall, 26.27% (*n* = 160) of the sample (*n* = 609) reported drinking and riding a motorcycle and the majority were among girls (57.5%; $\chi^2 = 14.05, p = 0.52$). The prevalence of riding a motorcycle after

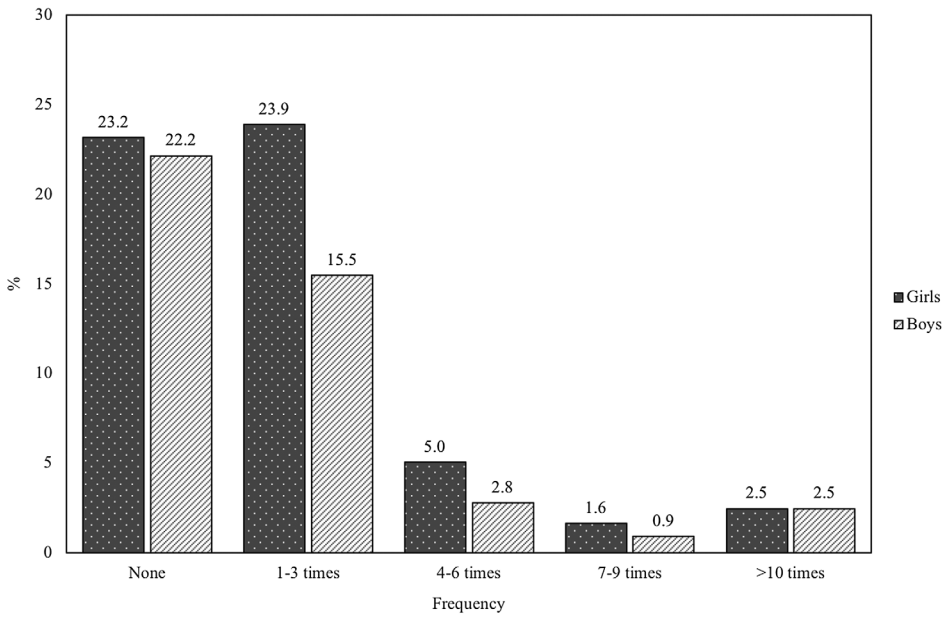


Figure 1. Frequency of alcohol drinking in previous 30 days ($n = 975$).

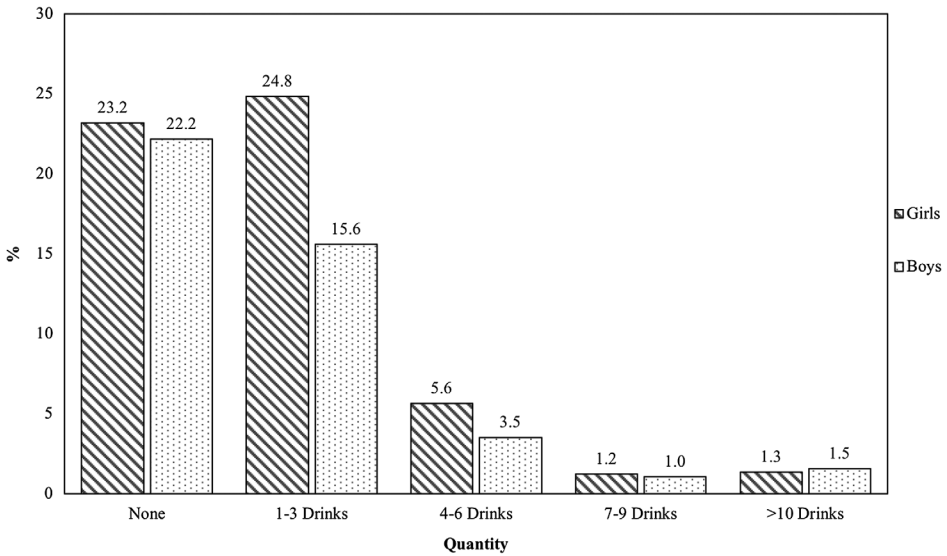


Figure 2. Frequency of alcohol drinking in previous 30 days ($n = 975$).

drinking alcohol increased with age, from 2.72% in 10-years old to 73.63% in 14-years old adolescents ($\chi^2 = 47.5, p = 0.87$). Additionally, just 3.12% ($n = 19$) reported drinking and driving a car during the past month and over half of them were girls ($n = 12; 63.15\%; \chi^2 = 1.46, p = 0.69$). Just a small percentage ($n = 21; 3.45\%$) of all respondents ($21/609$) reported an accidente after getting drunk in the previous month. They were predominantly girls ($n = 13; 61.91\%; \chi^2 = 1.72, p = 0.42$) (Table 5).

Table 5. Distribution of current drinker in the previous year according to problem experienced and risky experienced after alcohol drinking.

Problems	n	Boy		Girl		Total	
		Yes	%	Yes	%	Yes	%
Vomit	1040	126	12.12	160	15.38	286	27.50
Absent from class	1040	56	5.38	35	3.37	91	8.75
Low score/grades	1040	86	8.27	42	4.04	128	12.31
Get into fight	1040	86	8.27	27	2.60	113	10.87
loss memory	1040	49	4.71	45	4.33	94	9.04
Hurt Themselves	1040	30	2.88	34	3.27	64	6.15
Having sexual intercourse	1040	32	3.08	12	1.15	44	4.23
Intentional ^a	43	19	44.19	4	9.30	23	53.49
Unintentional	43	12	27.91	8	18.60	20	46.51
Protected ^a	42	18	42.86	9	21.43	27	64.29
Unprotected	42	13	30.95	2	4.76	15	35.71
Riding a motorcycle in 30 days ^b	609	68	11.17	92	15.11	160	26.27
Driving a car in 30 days ^b	609	7	1.15	12	1.97	19	3.12
Accident after drink in 30 days ^b	609	8	1.31	13	2.13	21	3.45

^aMissing 1 case.

^bBase on the number of drinker in previous 30 days.

Discussions

Although research over the last decade showed that alcohol drinking was a serious problem for Thai adolescents, few studies involved alcohol consumption among early adolescents. It is commonly accepted and undeniable that underage alcohol consumption can lead to adverse consequences. Thereby, the aim of the present study was to describe the prevalence and the contexts of drinking behaviour in Thailand among adolescent aged 10–14 years.

An important novel finding demonstrated that a large percentage of early adolescents (31.01%) had experience with alcohol at least once in their lifetime. In contrast to previous research, the prevalence of alcohol use in this study was lower than that in previous reports in other age category of adolescents. For example, Ting, Chen, Liu, Lin, and Chen (2015) conducted a longitudinal study among 6th grade (aged 11–12) of Taiwan students and found that 48% of the participants had experience with alcohol. Furthermore, in European countries (Belgium; the Netherlands; Germany and Austria) (Berten, Cardoen, Rossem, Brondeel, & Vettenburg, 2013), 66.42% of youth participants (aged 13–15) had consumed alcohol. On the other hand, the prevalence of alcohol consumption among an early-stage of adolescence in this study was high compared to the previous studies on alcohol drinking among Thai youth (Assanangkornchai et al., 2009, 2010; Sam-angsri et al., 2010). However, this data must be analysed cautiously because the prevalence of alcohol use among early-stage of adolescence has not previously been well described.

These results may be explained by the social context. Chonburi has been well known as a touristic attractive area and is also the place where many pubs, bars, restaurants, convenient stores and groceries are located. Therefore, access to alcoholic beverages is easy and this might have a substantial impact on alcohol consumption of the locals, particularly young people. It seems to be consistent with other research which found that alcohol drinking by tourists has a considerable consequence on the local society and it probably increases possibility of underage drinking (Cisneros Örnberg & Room, 2014; McNeil, Inthawong, & Assanangkornchai, 2015).

Since underage drinking is illegal, unacceptable and non-socially desirable, intentional or unintentional answers could be inevitable consequences in this study. Consequently, when participants were asked to report their previous behaviours, they might have avoided telling the truth. As a result, the true prevalence of underage drinking is hard to estimate. However, using the anonymous self-report, confidentiality guaranteed (Althubaiti, 2016) and large sample size as validated instrument for assessment as well as informing participants about the objective and giving them much time before answering (Eman, 2005) the questionnaire can minimize this possibility.

Previous studies have shown that the prevalence of alcohol consumption was higher among boys than girls (Alex-Hart, Opara, & Okagua, 2015; Assanangkornchai et al., 2010; Chaveepojnkamjorn, 2012; MacArthur et al., 2012; Pengpid & Peltzer, 2012; Phuphaibul, Nuntawan, & Loveland-Chery, 2011; Pichainarong & Chaveepojnkamjorn, 2010; Sam-angsri et al., 2010; Simoes, Batista-Foguet, Matos, & Calmeiro, 2008). In this research study, conversely, girl participants were more likely to engage in alcohol use than boys. This has also been observed by Gony and Mrug (2013). Their findings have exhibited that in an early and middle stages of adolescence, girls were more likely to use alcohol than boys. This result is somewhat difficult to explain and should be investigated in more details in the future; however, this might be related to the developmental perspective. There are different gaps of the maturity development between boys and girls. Girls tend to be more mature and have early cognitive development than boys (Cromer, 2011; Poulin, Denault, & Pedersen, 2011; Poulin & Pedersen, 2007). Thereby, during this period, girls may acquire behaviours such as drinking alcohol and having friendships with other sex as a sign of being independent. Another possible explanation is that girls tend to date or build a relationship with older males. Moreover, some of their partners might have already started to try alcoholic beverages (Poulin & Pedersen, 2007). Thus, it seems apparent that dating partners may have a strong influence on girl's drinking behaviours (Mrug, Borch, & Cillessen, 2011). Although, the current research has shown that girls drink more than boys, the alcohol prevention campaign in both genders should be taken into account.

The results from this study indicated that more adolescents preferred to drink at home and at their relatives' places. This may be a function of family role. Parental behaviours are strongly influencing first alcohol use among young adolescents (White, Johnson, & Buyske, 2000). At home, young children learn how to drink alcohol from their parents (Borawski, levers-Landis, Lovegreen, & Trapl, 2003) because the parents believe that letting their children drink alcohol at home may enhance self-protection (Kittipichai et al., 2012). This result seems to be consistent with other research showing that adolescents are first introduced to alcohol use by parents (Eadie et al., 2010; Jones & Magee, 2014; Kittipichai et al., 2012; Ward & Snow, 2011). This result has indicated that nowadays, the parental role is different from the Thai traditional norm that parents should be good role models for their child.

Studies have shown that adolescents living with divorced family have a tendency to drink than those who live with both of parents (Jeynes, 2001; Thompson, Lizardi, Keyes, & Hasin, 2008; Vanassche, Sodermans, Matthijs, & Swicegood, 2014). Our finding also showed that the adolescents whom lived with divorced family, single parents and those who were neither close to both of their parents were more likely to drink than others. Because adolescence have to adjust them self during their transition period, adolescents living with unstable family environment and fraught with difficulties are often seen with the unsuccessful transition through this period (Vanassche et al., 2014). This results indicated a positive impact of family function and family environment, which affect to daily life of adolescents (Kendler, Schmitt, Aggen, & Prescott, 2008). This should be remarked that stress from parental divorce may make adolescents more likely to be under the influence of alcohol (Jeynes, 2001).

Although the minimum legal alcohol purchase age in Thailand is 20 years old (Alcohol Beverage Control Act, 2008), alcoholic beverages are illegally bought by those with lower age. Our findings were also consistent with Limaye et al. (2013), who found that as law enforcement on adolescents buying alcohol was not concerned, alcohol purchase from familiar shopkeepers in their neighbourhoods would be possible for the younger people. Additionally, Puangsuwan, Phakdeesettakun, Thamarangsi, and Chaiyasong (2012) also found that underage adolescents were successful in buying alcohol without asked for age and requested to show an ID card. This is possible that adults did not concern the negative consequence of alcohol use among the youth or the shopkeepers were just driven by the demand to make an advantage (Limaye et al., 2013). This could be alternative issue that is needed to be taken into account and deeply investigated in further research.

Although, driving a vehicle under influence of alcohol is widely known as a major cause of casualties and disabilities among adolescents (Panbaudee & Nitis, 2010) and not legally allowed by the law (the minimum age to drive a motor vehicle is 18, and 15 for a motorcycle), adolescents reported

they drove after drinking. Due to the prevalence of driving a motor vehicle and a motorcycle after alcohol use among early-stage of adolescence has not previously been well described, the comparison of the prevalence with more related age groups of adolescents found that our investigation was far below that those observed. For example, Assanangkornchai et al. (2009) found that 35.4% of current non binge drinkers and 65.3% of current binge drinkers of high school students (13–17 year of age) and vocational students (16–17 years old) drove a car or a motorcycle after drinking. This was in line with the previous studies that the strong relationship between alcohol drinking and driving behaviours was indicated (LaBrie, Kenney, Mirza, & Lac, 2011; Sabel, Bensley, & Van Eenwyk, 2004; Tomas Dols et al., 2010). This consistency may be caused by the direct effect to brain, lack of personal awareness and poor decision-making (Cromer, 2011; Tapert et al., 2004/2005). Another remarkable point is that in this study we did not focus on the information concerning how fast and how safe they drove such as wearing a helmet and fastening a seat belt. Most interestingly, they drove or rode a vehicle without a driving license.

Strengths and limitations of the study

This cross-sectional survey provides unique information on alcohol use among early adolescents. The specific age group is between 10 and 14 years. A large sample of boys and girls within a specific age group was included for this assessment. Under- or overestimated answering behaviour could not be avoided in this observational study since participants were asked to answer about their previous acts (i.e. age of first drink, quantity of drink in the previous month) or social stigmatized questions such as sexual intercourse, their answers might be under or overestimated. Therefore, it depends on the participants' ability to recall their past memories or whether they want to answer the questions. This could be one of the limitations in this study. Although the participants in this study were the representatives of the early-stage of adolescents in Chonburi province, the generalization of the results to Thailand adolescents should be carried out with cautions.

As the current study involved a self-report questionnaire, there were limited questions to be explored. For example, in this study the prevalence of alcohol drinking was higher in girls than boys, as well as the prevalence of riding or driving the vehicle. These were in contrast with some recent studies which mentioned that boys are more likely to engage to the risk behaviours than girls. Such behaviours cannot be explained by using the quantitative methodology. Therefore, a qualitative study may be used so as to help to gain more information and understanding among those variables.

Recommendations for future research and application

This cross-sectional study adds to the small Thai's research evidence about the prevalence of alcohol drinking among early-stage of adolescence. It revealed that older age, high education level and other family factors were more likely have an effect on drinking behaviours in the previous year. A key implication of the current study is that alcohol prevention programs should be applied as early as possible in the elementary schools. Friends, parents and health care providers in the campaigns should be involved. Activities organized and collaborated by schools, primary health care centres or local administrative organizations should be promoted to provide information about health for the youth in order to increase their knowledge and to change their attitudes.

Only the quantity of alcohol consumption among early-stage of adolescence is provided. A qualitative study should be applied in order to deeply understand and clearly explain the drinking situation and the contexts related to alcohol initiation in an early-stage of adolescence. More research in Thailand in this group is needed to get more insight into the size and the effects of the phenomenon. Similarly, the factors related to alcohol drinking among an early-stage of adolescence are also required and confirmed.

Conclusion

This study showed that boys tend to drink more when they are getting older and have higher education. Although high rates of alcohol drinking have been found among very young adolescents, few studies have paid attention to alcohol use among adolescents aged 10 to 14 years old. Surprisingly, some children start to drink alcohol at a very young age of 6 years old. Additionally, alcohol consumption tends to be quite high in young people in Thailand, especially girls, high school students and those living with single parents. Ensuring appropriate systems, services and support for alcohol prevention should be a priority for very young adolescents. In terms of directions for future research, further work should also be conducted to determine the factors related to alcohol drinking by using the quantitative methodology. Moreover, the phenomenon of underage drinking and the other contexts also have to be explained by using the qualitative methodology.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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