CHAPTER IV

RESULTS

A cross-sectional survey , using a self-administered questionnaire, was conducted to describe urban senior high school students' experiences with drinking and driving in Vientiane Municipality of Laos. The data collection was carried out in seven high schools namely: Chanthabuli, Phiavath, Sikhottabong, Sisattanak, Saysettha, Thatluang and Vientiane high school. The survey was conducted over two weeks (from 20 March to 5 April 2003).

The results of this study are presented sequentially according to the following variable clusters:

- Socio-demographic characteristics of the respondents.
- Driving behavior
- Drinking experience
- Road traffic accident experience
- Relationship among socio-demography, driving experience and drinking experience and road traffic accident experience.

1. Socio-demographic Characteristics of the Respondents

The total number of subjects was 400. Of the estimated sample size, only 394 respondents could be included in the study. Six people did not turn up during the survey.

The proportion of respondents selected for the sample depended upon the population size of each school. The distribution was as follows: 72 (18.3%) students from Chanthabury high school, 48 (12.%) from Phiawat high school, 64 (16.2%) from Sikhottabong, 47 (11.9%) from Sisattanak, 30 (7.6%) from Saysettha, 29 (7.4%) from Thatloung and 104 (26.4%) from Vientiane high school.

Within each high school, students were selected from grade 4, 5 and 6. For the total sample the distribution by grade was as follows: grade 4 accounted for 31.97%, grade 5 was 27.15% and grade 6 was 40.86%.

The respondents' ages were ranging from 13 to 21 years with the median age 17 years. There was almost an equal representation of gender in the sample with 50.8 % females and 49.2% male.

More than 72% of the sample was composed of teenagers (16-18 years). In conclusion, our respondent major characteristics, therefore, are being roughly equal between male and female, age between 16 trough 18 years old, in grade 6 and finally more than one quarter came from Vientiane high school.

Table4 Distribution of Frequencies and Proportions on the Respondents by Socio-demographic Characteristics.

School of respondent	n	%	Median
Chanthabuli	72	18.3	
Phiavath	48	12.2	
Sikhottabong	64	16.2	
Sisattanak	47	11.9	
Saysettha	30	7.6	
Thatluang	29	7.4	
Vientiane	104	26.4	
Grade of respondent			
Grade 4	126	31.97	
Grade 5	107	27.15	
Grade 6	161	40.86	
Gender			
Female	200	50.8	
Male	194	49.2	
Age			17
13-15	90	22.8	
16-18	284	72.2	
19-21	20	5.0	

2. Socio-economic Characteristic of the Respondents.

Some of the subjects could not answer the questions on income because they were not aware about their family income and they did not have own income. Only 310 (78.6%) respondents answered about their family income and 219 (55.8%) answered on their own income. Overall, there were differences in their family and their own income as follows:

The lowest family income was 100,000 Kip/month and the highest was 30,000,000 Kip/month. The mean family income was 1,245,120 Kip/month.

The majority of respondents (37.7%) reported a family income > 900,000 Kip/month and only 8.1% had a family income above 600,000 but below 900,000 Kip/month.

The minimum students' own income was 10,000 Kip/month and the maximum was 500,000 Kip/month and the mean on own income was 113,535 Kip/month.

Out of 271 students who had their own earnings, most of them (47.2%) earned an income of less than 100,000 Kip/month while only 8.1% was receiving an income above 300,000 Kip/month. The majority of respondents earned less than 100,000 Kip/month and the family income was more than 900,000 Kip/month. Detailed results of family and own income are presented in Appendix F 1.

3. Driving Behavior

3.1 Driving Experience

Some of the respondents stated to start driving at as early as 7 years old, while the majority started driving between 13 and 15 years. The median age of the respondents when starting driving was 17 years

The legal age for applying for a driving license is 16 years, therefore 18.3% should have a driving license. As presented in Appendix F 2, 18.5% of the respondents had a driving license which corresponds with the legal age (16 years) for applying for a driving license. 81.5% did not have a driving license.

Of those holding a driving license more than 60% was holding a driving license for 1year only, while 8.1% of the respondents held a license for more than 3 years.

Almost 70% had driving experience between 1 to 3 years. Very few drove for more than 9 years, while 11.7% had driven less than one year. (See the results in Appendix F 2 and F3)

3.2 Driving Style

In total 21 questions were asked to explore the driving style of high school students. The 21 questions were used to measure 4 variables of driving style namely: (a) Overtaking in the restricted zones, (b) Reckless driving behavior, (c) Stop in non stop area and (d) Violate traffic signals.

a) Overtaking in the restricted zones

Six questions were asked to describe overtaking behavior of respondents, Table 9 shows that the majority (58.6%) of respondents replied that they overtook rarely other vehicles whenever there was an opportunity, while 15.5% replied very often.

Of all respondents, most of them (48.5%) replied rarely to shifted lanes to be ahead of others while waiting at the traffic junction.

On the question about overtaking other vehicles in heavy traffic, whenever they had chance, the majority of the respondents replied never (41.4%) or rarely (42.9%), whereas 5.6% of the respondents replied very often.

Most of the respondents (91.4%) replied never have been warned by the police while very few (0.3%) were warned very often.

The majority of the respondents (78.4%) were never fined for overtaking other vehicles while only 1% were fined very often.

More than 80% of the respondents never got an accident while they were overtaking other vehicles whereas only 9.9% got rarely an accident and 1.5% said they had often accident and very often.

b) Reckless driving behavior

There were 6 questions about reckless driving behavior. More than half of the respondents (55.6%) answered that they rarely wonder off on thoughts while driving.

Most of the respondents (69.5%) replied never to drive fast, even if their friend passenger was in a hurry. Sixty two percent of them said that they never turned to their friend while driving.

Regarding showing their skills to their friends, very few respondents stated that they love to race very often (1.3%) while most of them replied never (80.7%). As shown in Table 5, the respondents answered to the statements " you are very confident with your motorbike and are not afraid to speed up when it rains " There were 68.5% of the respondents who replied never to speed up their motorbike when it rains while only 0.8% did it very often.

Most of respondent 61.7% answered never to ignore traffic lights even when police was not around, while 31.7% answered to rarely ignore traffic lights.

Table 5 Distribution of Proportions on Driving Style.

Driving style	Never	Rarely	Often	Very often	Total	
	%	%	%	%	%	n
Overtaking in the restricted zone						
Overtook other vehicles	5.8	58.6	20.1	15.5	100.0	394
Shifted lane to ahead	29.9	48.5	16.2	5.3	100.0	394
Overtook in heavy traffic	41.4	42.9	10.2	5.6	100.0	394
Warned for overtaking	91.4	7.9	0.5	0.3	100.0	394
Fined for overtaking	78.4	15.5	5.1	1.0	100.0	394
Had accidents overtaking	88.6	9.9	1.0	0.5	100.0	394
Reckless driving behavior						
Diving on off thoughts	23.4	55.6	13.2	7.9	100.0	394
Driving fast when friend ask	69.5	27.4	2.3	0.8	100.0	394
Turned to friend	62.7	32.7	2.5	2.0	100.0	394
Driving for show skills	80.7	15.5	2.5	1.3	100.0	394
Driving fast in rain	68.5	28.9	1.8	0.8	100.0	394
Traffic light ignored	61.7	31.7	5.3	1.3	100.0	394
Stop at non stop area						
Stopped in non stop –zone	72.8	25	1.8	0.5	100.0	394
Moved broken motorbike*	21.3	16.2	12.4	50	100.0	394
Picked up friend non stop zone	66.8	27.2	5.1	0.8	100.0	394
Stop at crowded area	68.5	25.9	4.3	1.3	100.0	394
Stop at bus stop area	59.4	31.0	5.6	4.1	100.0	394
Violate traffic signal						
Speed up yellow light signal	27.4	53.6	10.7	8.4	100.0	394
Slow down at yellow signal*	9.9	19.5	20.1	50.5	100.0	394
Followed violating vehicle	56.1	30.5	8.9	4.6	100.0	394
Stop before stop line*	23.1	12.9	14.5	49.5	100.0	394

*Positive question

c) Stop at a non stop area

There were 5 statements concerned with stopping at a non-stop area. Of all respondents, 72.8% answered never to stop at non-stop area whereas, only 2.3% answered to do this often and very often.

When asked about moving their motorbike from the road when it was broken, 50% of the respondents answered to move their motorbike toward a safer side of the road very often, whereas 21.3% answered that they never moved it.

Sixty percent of the respondents replied never to stop at a non-stop zone to pick up their friends, only 0.8% replied to do this very often.

On the question whether they use to stop at crowded and bus stop areas, the majority of the respondents 68.5% replied never, and 59.4 % answered to do so rarely, while few 1.3 % answered often and 4.1% replied very often.

The majority of respondents (59.4%) replied that they never stop at the bus stop zone, 31% do rarely and only 4.1% answered to stop very often.

d) Violate traffic signal

Violating traffic signals was also one of the variables that were examined in this study. There were 4 statements including 2 negatively and 2 positively worded statements.

Regarding the statement "when approaching a traffic junction you speed up when the light–signal turns yellow as to cross the junction before the light is turning red" 27.4% of the respondents replied never to do this, while 53.6% replied rarely to do so.

A greater number of respondents (50.5%) replied to slow down the speed when they saw a yellow signal, while 9.9% answered that they never did so. More than half of the respondents (56.1%) never followed a violating vehicle while 4.6% answered very often.

Of all respondents 23% answered never to stop before the stop line at a red traffic light, 12% replied to stop rarely before the stop line and 49.5% answered very often.

As shown in Table 6 it was surprising that more than half of respondents stated never to use a helmet, 31.7% answered rarely to use, whereas only 6.6% of them replied to use a helmet all the time.

Table 6 Distribution of Proportions on Helmet Use

	Never	**Rarely**	**Often**	**All the time**	**Total**
	%	%	%	%	
Helmet usage	55.6	31.7	6.1	6.6	394

4. Drinking Experience

Table 7 Distribution of Proportions on Alcohol Drinking Experience

	Yes	No	Total
	%	%	
Alcohol drinking	70.7	29.3	394

Table 7 shows that of all respondents, 279 (70.7%) drink some kind of alcoholic beverages. As shown in Appendix F Table 4, beer is the most commonly used (56.3%) alcoholic beverage among those that use to drink. Results of alcoholic beverages are presented in Appendix F 4.

On the frequency of drinking, only a small percentage (14.4%) of high school seniors reported to drink weekly. While 39.1% of the respondents replied to drink less than once a month, 46.6% answered to drink 1 to 2 times a month and 14.4% answered to drink several times a week.

When asked how many drinks they used to take on one occasion, 38.0% of the respondents replied 1-2 drinks, 30.5% replied 3-4 drinks, while 31.6% stated to drink 5-6 drinks or more in one occasion.

Table 8 Distribution of Frequencies and Proportions on Drinking Frequency and Quantity of One Occasion

Frequency of drinking	**n (279)**	**%**
< Monthly	109	39.1
1-2 times a month	130	46.6
2-3 times a week	32	11.5
4 or more a week	8	2.9
Quantity of one occasion	**n (279)**	**%**
1-2 drink	106	38.0
3-4 drink	85	30.5
5-6 drink	31	11.1
7-9 drink	18	6.5
10 or more	39	14.0

As shown in Table 9, drinking among friends is most popular 79.3%, for 47,5% of the respondents, a friend's house was the favorite place for drinking and 52.3% replied to drink when they had a party with their friends.

On the question related to six or more drinks at one occasion, among 279 respondents, half of them never drink six alcoholic drinks or more at one occasion. Among those who stated to drink six and more drinks on one occasion, 29.0% answered to do so less than monthly, while 2.2% replied to have daily six or more drinks. See Appendix F 10 for details.

Table 9 Distribution of Frequencies and Proportions on Drinking Companies, Drinking Place and Type of Drinking Occasion

Drinking experiences	n(279)	%
Drinking company		
Friend	222	79.3
Family member	36	12.9
Alone	0	0.0
Other	21	7.5
Drinking place		
Home	58	20.7
Friend's house	133	47.5
Beer garden	39	13.9
Restaurant	20	7.5
Karaoke	29	10.4
Occasion		
Family event	68	24.4
Religious	24	8.6
Party	146	52.3
National	7	2.5
Weekend	5	1.8
Any time	29	10.4

Table 10 Distribution of Frequencies and Proportions on Occurrences of having Six or more Drinks at One Occasion

Six drink or more	n	%
Never	141	50.5
Less than Monthly	81	29.0
Monthly	32	11.5
Weekly	19	6.8
Daily	6	2.2
Total	279	100

More than half (54.6%) of the respondents replied never to drive after drinking while 42% replied rarely to drive after drinking, and 5.3% answered often or always to drive after drinking.

Table 11 Distribution of Frequencies and Proportions on Driving After Drinking.

Drive after drinking	**n (394)**	**%**
Never	215	54.6
Rarely	159	42.3
Often	8	2.1
Always	12	3.2

5. Road Traffic Accident Experiences

Of all the respondents, 43% had faced a motorcycle accident. Amongst the 170 respondents who had accidents, 90% of them said that they had 1or 2 times an accident.

Table 12 Distribution of Frequencies and Proportions on Accident Experience and Accident Frequency.

Accident experience	**n**	**%**
No	224	56.9
Yes	170	43.1
Total	394	100
Accident frequency		
1-2 time	153	90.0
3-4 time	15	8.8
5-6 time	2	1.2
Total	170	100.0

On the question whether they had used alcohol on their 1st motorcycle accident 35 (21.6%) of the respondents answered that they did use alcohol and of those only 6.2% reported no injuries. While among those 127 students (78.4%) who replied not to have used alcohol, 27.2% reported no injuries.

On the question whether they had used alcohol on their 2nd motorcycle accident 19.0% of the respondents answered that they did use alcohol and among those only 5.2% reported no injuries. While among the 81.0% students who replied not to have used alcohol, 17.2% reported no injuries.

On the question whether they had used alcohol on their 3rd motorcycle accident 27.9% of the respondents answered that they did use alcohol and of those only 5.6% reported no injuries. While among the 72% students who replied not to have used alcohol, 11.1% reported no injuries.

On the question whether they had used alcohol on their 4th motorcycle accident 55.5% of the respondents answered that they did use alcohol and among those only 11.1% reported no injuries. While among the 44.4% students who replied not to have used alcohol, 11.1% reported no injuries.

Table 13 Distribution of Frequencies and Proportions on Types of Injuries for the First, Second, 3rd and 4th Road Traffic Accident.

Accident history	No alcohol	Alcohol	Total
	%	%	
1st accident			
No injury,	27.2	6.2	54
External injury	44.4	8.0	85
Extremity	2.5	2.5	8
Face injury	1.9	2.5	7
Thorax,	0.6	0.6	2
Head and neck injury	1.2	0.6	3
Abdominal contusion	0.6	1.2	3
Total	**78.4**	**21.6**	**162**
2nd accident			
No injury	17.2	5.2	13
External injury	48.3	8.6	33
Extremity	1.7	3.4	3
Face injury	3.4	1.7	3
Thorax contusion	8.6	0.0	5
Abdominal contusion	1.7	0.0	1
Total	**81.0**	**19.0**	**58**
3rd accident			
No injury	11.1	5.6	3
External injury	44.4	5.6	9
Extremity	5.6	0.0	1
Face	5.6	0.0	1
Face injury	0.0	16.7	3
Thorax	5.6	0.0	1
Total	**72**	**27.9**	**18**
4th accident			
No injury	11.1	11.1	2
External injury	0.0	11.1	1
Extremity	11.1	11.1	2
Face	11.1	11.1	2
Thorax	0.0	11.1	1
Abdominal contusion	11.1	0.0	1
Total	**44.4**	**55.5**	**10**

Note: The table contains medical terms but the questionnaire used common language.

6. Relationship among Socio-demographic Characteristics, Driving Experience, Drinking Experience and Road Traffic Accidents.

Chi-square was used to test the relationships among Socio-demographic Characteristics, Driving Experience, Drinking Experience and Road Traffic Accidents.

6.1 The Relationship between Socio-demographic Characteristics and Driving Experience.

To describe the relationship between socio-demographic characteristics and driving experience, chi-square test was used.

Gender:

Table 14 Distribution of Proportions of Gender on Driving Experience.

	Gender			$\chi 2$	p-value
	Female	Male	Total		
Driving experience	%	%	n	7.338	.062
<1	63.0	37.0	46		
1-3	52.0	48.0	273		
4 – 6	38.6	61.4	57		
≥ 6	38.9	61.1	16		

As shown in Table14, among all respondents, the majority had a driving experience between 1-3 years. Male respondents proportions increase parallel with years of driving experience. Whereas for female respondent proportions decrease parallel with years of

driving experience. There was no statistically significant difference between gender and driving experience.

Males have license more than females, and the percentage of males increased parallel with increase of possessing a driving license. Most of the respondents who have driving license, hold the license within 1 year. There was an equal distribution between male and female. There was no statistically significant difference between gender and holding a driving license. The detailed results are shown in the Appendix F 5

Age:

Most of the subjects had 1-3 years driving experience like mentioned above, 25.3% of them were aged 13-15, 71.8% was aged 16-18 and 2.9% of them were above 18 years. Out of 321 subjects who have no license, 24.9% lie within age rage of 13-15 years old, 71.0% aged 16-18 and 4.0% was more than 18 years.

Among the 73 respondents who have license, the majority were aged of 16 to 18 and those who were holding license in the first year was 61.64%.

Table 15 Association between Age and Driving Experience.

	Age			Total		$\chi 2$	p-value
	13-15	16-18	>18				
Driving experience	%	%	%	n	%	61.023a	<.001
<1	41.3	56.5	2.2	46	11.0		
1-3	25.3	71.8	2.9	273	70.0		
4-6	3.5	87.2	8.8	57	14.46		
>6	0.0	66.6	33.3	18	4.54		

a: for the Chi-square test more than 20% of the cells had counts <5

6.2 The Relationship between Socio-demographic Characteristics and Driving Styles.

All among 394 respondents, 35.5% of them replied that they often and very often overtook other vehicles, most of them (62% above) were males. There were statistically significant differences between gender and overtaking other vehicles at p-value.001.

Sixteen percent of senior high school students answered often to shift lanes to be ahead of other vehicles while waiting at the traffic junction, more female than male replied to do so. Ten percent of the respondents reported often to overtake in heavy traffic, there was parity between males and females. There was a statistically significant difference between overtaking on heavy traffic and gender at p-value.005.

The majority of respondents answered never being warned by police, never being fined by police and never had accidents while overtaking other vehicles. There was similarity in the distribution among males and females.

More than twenty percent of respondents replied often and very often to drive on off thought while driving, females more than males reported so. The majority of senior high school students answered never to drive fast when their friend was in a hurry, turn their head to their friends when they called out, show their driving skills to their friends, drive fast when it rains and ignore traffic lights when police was not around. The proportions of females answering never for these indicators were higher than males. There was a statistically significant difference between driving for showing their skill to their friends at p-value <. 001.

Twenty one percent of respondents reported never to move their broken motorbike from the road. . There was a statistically significant difference between moving broken motorbike from the road and gender at p-value .013.

The majority of respondents answered never to stop at non-stop zone, picks up their friend at non stop zone, stop at a crowded area and stop at bus stop area. Few females did stop in restricted zones more than males. There was a statistically significant difference between stop at bus stop areas and gender at p-value .01.

Half of respondents answered very often to slow down the speed when they saw a yellow signal and to stop before the stop line at a read traffic light, Few males complied more than females. The majority of respondents reported rarely to speed up when the light-signal turns yellow to cross the junction, and never to follow the traffic signal violating vehicles. Females answered to do these more than Males. Detailed results on the association between driving style and gender is presented in Appendix F7

6.3 The Relationship between Socio-demographic Characteristics and Drinking Experience.

Gender :

Table 16 Association between Drinking and Gender

	Gender			$\chi 2$	p-value
	Female	Male	Total		
Drinking Experience	%	%	n	17.042	<.001
No drink	67.0	33.0	115		
Drink	44.0	55.9	279		
Frequency of drink				.086	.651
≤ Monthly	45.9	54.1	109		
2 time a month	44.6	55.4	130		
≥ 2 time a week	37.5	62.5	40		
Quantity of one occasion				17.987	<.001
1-2 drinks	56.6	43.4	106		
3-4	44.7	55.3	85		
5-6	38.7	61.3	31		
7-9	16.7	83.3	18		
10 or more	25.6	74.4	39		
Frequency of six or more				5.783	.123
Never	51.1	48.9	141		
Less than monthly	38.3	61.1	81		
Monthly	34.4	65.6	32		
Weekly	36.0	64.0	25		

Gender differences associated with the nature of alcohol consumption have been investigated by examining male-to-female ratios as shown in Table 16, two third of the respondents consumed alcohol, among them 44.0% were female and 56% were male. There was a statistically significance difference between drinking and gender at p-value <0.001.

Males responded more frequently to drink than females. Proportions of male respondents increased by increasing drinking frequency, it increased from 54.1% of

drinking less or monthly to 62.5% of 2 or more times in a week. However, there was no statistically significant different between gender and drinking frequency.

Prevalence of heavy drinking was significant lower among females than those of males, gender differences for this parameter paralleled those for heavy drinking. The proportion of male drinkers was increased gradually from 43.4% in 1-2 drinks to 74.5%in 10 or more drinks. These increases in heavy occasional drinking were especially marked for 7-8 drinks. There was a statistically significant different between gender and quantity of drinks in one occasion.

Like drinking frequency, the distribution of proportions of who had six or more drinks was higher in male than female. These figure were 61.1% in drinking less than monthly, 65.6% in monthly drinking and 64.0% in weekly for males while those of female drinkers were 38.3%, 34.4 %and 36.0%. There was no statistically significant difference between gender and frequency of six or more drinks in one occasion.

Regardless of alcohol type, compared with females, male respondents like to drink higher volume of alcohol such as whisky and local wine (60.0% and 81.0%). There was no significant difference between gender and alcohol type.

The proportions on drinking occasion , drinking company and drinking place were similar for males and females. Either males or females like to drink with friends (females 42.8% Vs males 57.2%), in party with friends (females 43.2% Vs males 56.8%) and at friend's house (females 45.9 % Vs males 54.1%). There was no

statistically difference between gender and drinking occasion, drinking company and drinking place. Detailed results on associations between alcohol type, drinking occasion, drinking company and drinking place are presented in Appendix F Table 8.

Figure 6 Distribution of Quantity of Drinks in One Occasion between Male and Female.

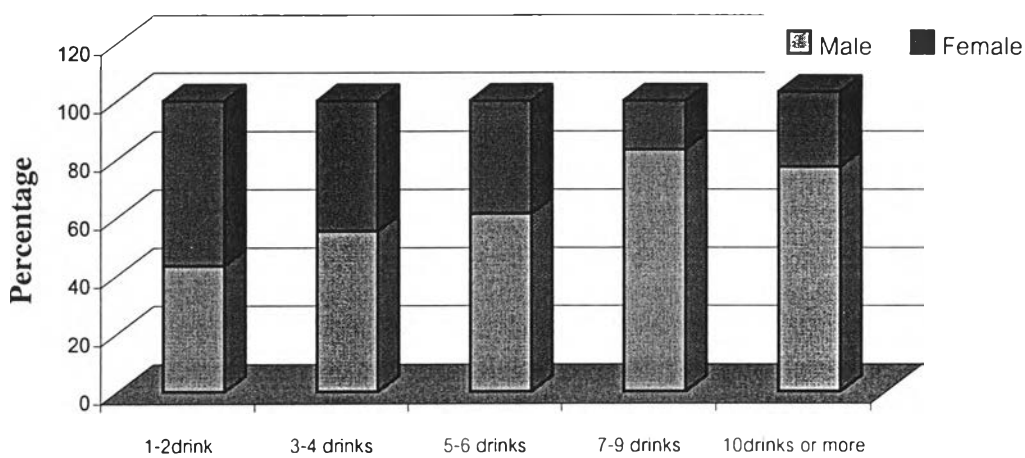

Table 17 Association between Gender and Driving after Drinking

	Gender				$\chi 2$	p-value
	Female	Male	Total			
Driving after drinking	%	%	n	%	8.388	.004
No drive	56.9	43.1	197	52.4		
Drive	41.9	58.1	179	47.6		

Driving after drinking is more common among males than females. There was statistically significant difference between driving after drinking and gender at p-value 004.

As shown in Table 18 , the distribution of age groups of respondents that used to drink alcohol was greatest in the age of 16-18 (76%). There was a statistical significant difference between drinking and age at p-value <0.001.

The distribution of high school senior drinkers declined gradually from less than monthly drinking to daily. There were more students that took more than 5 drinks at one occasion in the age group 16-18 than in other age groups.

The proportions among drinking subjects were highest in age group of 16-18 for every level of quantity. For example 70.8 % for 1-2 drinks, 82.4 % for 3-4 drinks, 71.0 % for 5-6 drinks, 88.9% for 7-9 drinks and 74.4 % for more than 10 drinks.

Table 18 Association between Age and Drinking Experience

	Age			Total		$\chi 2$	p-value
Drinking experience	13-15	16-18	>18	n	%	20.986	<.001
No drink	36.4	62.6	.9	115	29.2		
Drink	17.2	76.0	6.8	279	70.8		
Frequency of drinking						80.108a	.230
Monthly	12.8	80.7	6.4	109	39.06		
1-2 times a month	22.3	71.5	6.2	130	46.59		
2-3 times a week	15.6	71.9	12.5	32	11.46		
4 or more a week	0.0	100.0	0.0	8	2.86		
Quantity of one occasion							
1-2 drink	26.4	70.8	2.8	106	5.73	22.353a	.004
3-4	10.6	82.4	7.1	85	30.46		
5-6	22.6	71.0	6.5	31	11.11		
7-9	5.6	88.9	5.6	18	6.45		
10 or more	7.7	74.4	7.9	39			
Frequency of six or more drinks						15.050a	.058
Never	22.0	73.0	5.0	141	50.53		
Less than monthly	12.3	82.7	4.9	81	29.03		
Monthly	18.8	71.9	9.4	32	11.46		
Weekly	0.0	78.9	21.1	19	6.81		
Daily	16.7	66.7	16.7	6	2.15		

a. For the Chi-square test there were more than 20% cells with counts <5

Moreover, it is notable that the proportion of respondents aged of 16-18 were highest in other drinking variables and sub drinking variables such as quantity of drinks in one occasion, frequency of six or more drinks, type of alcohol, drinking occasion, drinking company and drinking place.

As shown in the Appendix F 9, beer is the most common used alcoholic beverage in every age group, and they like to drink with friends, when they had a party at their friend's house. However, one third of the respondents answered to drink at outside places as beer gardens, restaurants and karaoke bars. No statistically significant difference was found between drinking place, gender and age.

In addition, the high frequencies and proportion in the age group 16-18 is because this age group contained respondents from grade 5 and grade 6 while the age group 13-15 only represent respondents from grade 4. Only a few students were above 18 years. The detailed results are presented in Appendix F 9.

Table 19 Association between Driving after Drinking and Age.

	Age				$\chi 2$	p-value
Drive after drink	13-15	16-18	>18	Total	27.302	<001
No drive	32.0	65.5	2.5	197		
Drive	11.2	80.4	8.4	179		

Among the respondents who replied to drive after drinking, there were 11.2% aged between 13-15 while the age group 16-18 had the highest frequency 80.4% and 8.4% were of age 19 above. There was a statistically significant difference between driving after drinking and age (p-value <. 001).

6.4 The Association between Socio-economic Profile and Drinking Experience

The frequency of those reporting to drink alcoholic beverages increased parallel with increase in family income, except in the group that reported a family income of > 900,000 Kip/ month. For example from 67.7% to 71.7% then 88.0% while 73.5% within the income group of > 900,000 Kip/ month.

In contrary, the frequency of drinking remains fairly stable throughout the various levels of own monthly income. For example 73% within the group of income less than 100,000 Kip/month, 72% within the income range of 100,000 to 200,000 Kip/month, and 71.4% within the income 200,001-300,000 Kip/month and 68.2% within the income group of more than 300,000 Kip/month. There was no statistically significant difference between Drinking Experience and Family Income or Own Income. Detailed results of relationships between socio-economic are presented in Appendix F 10

6.5 The Relationship between Driving Style and Drinking

6.5.1 The Relationship between Overtaking other Vehicles and Drinking Experience

More than 35% of the respondents reported that they often and very often overtake other vehicles, the majority of them were also alcohol drinkers. There was a statistically significant difference between drinking and overtaking other vehicles.

The majority of the respondents reported that they never shifted lane, never overtook in heavy traffic, never being warned by police, never being fined by police and had never accidents due to overtaking. The minority of the respondents, who answered to do so

often and very often, were also alcohol drinkers, especially for being warned by policy, being fined by police and having accident experiences.

6.5.2 The Relationship between Reckless Driving and Drinking Experience

There were six items to explore reckless driving, for only 1 statement the Chi-square test could be used to examine, namely the association between driving on off thoughts. Among 394 senior high school motorcyclists, 30% replied that they drove on off thoughts often and very often, and 90% of these respondents were alcohol drinking. There was a statistically significant difference between driving on off thought and drinking experience at p-value .007.

For the other five items, the majority of students replied never to drive fast when their friend told, never to turn to friend when their friends called, never show off their driving skills, never drive fast even it was raining and never ignore traffic light even when police was not around, while very few students replied to do so often and very often. However, those respondents who reported to often and very often conduct reckless driving were alcohol consumers. Because of cell counts <5, Chi-square for none of these five variables could be applied.

6.5.3 The Relationship between Stop at Non Stop Area and Drinking Experience

There are five questions to assess the stop at non stop driving behavior these included: (1) stop in non stop zone , (2) moved a broken motorbike outside the road, (3) pick up friends at non stop zone, (4) stop at a crowded area and (5) stop at bus stop area.

Among 394 respondents, the majority replied often and very often to move their motorcycle out side road. However, there were 21.3% who reported not to do so. Among these respondents the proportion of drinkers was greater than nondrinkers.

For the 4 questions, more than half of respondents answered never to stop at non stop areas, only a few did so often and very often. The proportion of alcohol users among those respondents was greater than nondrinkers for each level of answers except for the question about to pick up their friend at non-stop zone.

6.5.4 The Relationship between Violate Traffic Signal and Drinking Experience

There were 4 questions about violating traffic signals, two positive questions and two negative questions.

Majorities of respondents reported often and very often to slow down the speed when they saw yellow signal and stop before stop line. Most of respondents were alcohol drinkers. There was a statistically significant difference between slow down at yellow signal and drinking experience at p-value .033.

Majorities of respondents (53.6%) answered rarely to speed up when the light –signal turns yellow and 56.1% answered never follow violating vehicle. Most of respondents were alcohol consumers.

There was significant difference between following violating vehicle and drinking experience. Detailed results on the relationship between driving style and drinking are presented in Appendix F 11.

6.6 The Relationship between Driving after Drinking and Driving Style.

The majority of the respondents (58.2%) replied rarely to overtake other vehicles and 35.9% replied often and very often. The proportion of alcohol drinkers increased from never to very often (18.2%to 62.1%). There was a statistically significant difference between overtaking other vehicles and driving after drinking at p-value <. 001.

Among the 394 respondents, 49.2% answered rarely to shift lane to ahead and 21.8% answered often and very often to do so. The proportion of alcohol drinkers increased from never to very often (37.6% to 61.9%). There was a statistically significant difference between shift lane to ahead and driving after drinking at p-value .037.

Those who drive after drinking tend to comply less with the traffic code on slowing down for yellow traffic signal. There was a statistically significant difference between driving after drinking and slow down the speed at yellow signal at p-value .028.

Those who drive after drinking reported more frequent to follow a violating traffic signal vehicle. There was a statistically significant difference between drive after drinking and following a violating traffic signal vehicle (p-value .036).

6.7 The Relationship between Socio-demographic Characteristics and Road Traffic Accidents.

Table 20 Relationship between Gender and Road Traffic Accidents Experience

	Gender			$\chi 2$	p-value
	Female	Male	Total		
Road traffic accidents	%	%	n	1.160	.281
No accidents	53.1	46.9	224		
Accidents	47.6	52.4	170		

Table 21 Relationship between Age and Road Traffic Accidents Experience

	Age			Total		$\chi 2$	p-value
Road traffic accidents	13-15	16-18	>18	n	%	**1.613**	**.446**
No accidents	25.0	70.5	4.5	224	56.9		
Accidents	20.0	74.1	5.9	170	43.1		

As shown in Table 20 and 21 there were few differences between female and male who reported to had an accident, 47.6% female and 52.4% male. Of all 170 respondents who had road traffic accidents, 20% were of the age group 13-15, 74.1% were of the age group 16-18 and 5.9% were of the age 18 and more. There was no statistically significant difference between road traffic accidents and gender and age.

6.8 The Relationship between Driving Experience and Road Traffic Accident Experience.

Table 22 Relationship between Driving Experience and Road Traffic Accidents

	Road Traffic Accidents					
	No accidents	Accidents	Total		$\chi 2$	p-value
	%	%	n	%		
Driving experience					**6.298**	**.098**
<1	69.6	30.4	46	11.7		
1-3	57.5	42.5	273	69.3		
4-6	47.4	52.6	57	14.5		
>6	44.4	55.6	18	4.6		

Table 22 shows that the number of respondents who faced accidents increased parallel with years of driving experience. For example below 1 year 30.4%, 1-3 year 42.5%, 4-6 year 52.6% and above 6 year 55.6%. For those respondents who did not report accidents a decreasing trend is seen as years of driving experience increase. There was no statistically significant difference between road traffic accident and driving experience.

There was no significant difference on road traffic accidents between no driving license group (43.6%) and the group having a license (41.1%). No statistically significant difference was found between road traffic accidents and license holding (see Appendix F 12).

There was a similar pattern to face road traffic accidents among respondents who replied never to use a helmet 42.9%, rarely use 44.8%, often use 37.5% and use all the

time 42.3%. . No statistically significant difference between road traffic accidents and helmet use was found (see Appendix F 12).

6.9 The Relationship between Driving Style and Road Traffic Accident

There was a statistically significant difference in the cluster of reckless driving behavior and accidents for driving on off thought. Those reporting accidents more frequently drove on thought (often 55.8% very often 67.7%) compared to those with no accident experience (often 44.2% very often 32.3%).

For the cluster on violating traffic signal, there was a statistically significant difference between students reporting accident experience and no accident experience for (1) Speed up for yellow traffic light (Accident: often 54.8% very often 51.5%; No accident: often 45.2% very often 48.5%); (2) slow down for yellow traffic light (Accident: often 43.0% very often 38.2%; no accident: often 57.0% very often 61.8%); (3) following a violating vehicle (Accident: often 68.6% very often 38.9%; No accident: often 31.4% very often 61.1%). It is of interest to see that the distribution of proportions is opposite for very often following a violating vehicle.

6.10 The Relationship between Drinking and Road Traffic Accident .

Table 23 Relationship between Road Traffic Accidents and Drinking Experience and Frequency of Drinking,

Variables	Road Traffic Accident				$\chi 2$	p-value
	No accidents	Accident s	Total			
	%	%	n	%		
Drinking					**32.857**	**<.001**
No	79.1	20.9	115	29.2		
Yes	47.7	52.3	279	70.8		
Frequency of drink					**3.041**	**.219**
Monthly	50.5	49.5	109	39.1		
1-2 a month	49.2	50.8	130	46.6		
>2 time a week	35.0	65.0	40	14.3		

Of all 115 respondents who did not drink, 79.1% answered that they did not face an accident, while 20.9% did face an accident. In contrary, among the 279 respondents that replied to drink alcohol, 47.7% did not face accidents and 52.3% did face an accident. There was a statistically significant difference between road traffic accident and drinking experience at p= .001.

The proportion of road traffic accidents increased with increasing of drinking frequency. Theses figures increased from 49.5% of monthly drinking to 50.8% of 1-2 times a month and to 65% of drinking >2 times a week. There was no statistically significant difference between road traffic accidents and frequency of drinking.

Table 24 Relationship between Quantity of One Occasion and Road Traffic Accidents

Variables	Road Traffic Accident				$\chi 2$	p-value
	No accidents	Accidents	Total			
	%	%	n	%		
Quantity of one occasion					**9.027**	**<.060**
1-2 drink	53.8	46.2	106	38.0		
3-4 drinks	52.9	47.1	85	30.5		
5-6 drinks	32.3	67.7	31	11.1		
7-9	5.0	72.2	18	6.5		
10 or more	41.0	59.0	39	14.0		

As shown in Table 24 the proportion of accidents were higher than no accidents after having 5 drinks at one occasion. Moreover, these figures increased with increase in drinking quantity at one occasion. They increased from 46.2% for 1-2 drink on one occasion to 47.1% for 3-4 drinks, to 72.2% for 7-9 drinks. However, there was no statistically significant difference between road traffic accidents and quantity of drinks at one occasion.

Table 25 Relationship between Frequency of Six or More drinks and Road Traffic Accidents

Variables	Road Traffic Accident				$\chi 2$	p-value
	No accidents	Accidents	Total			
	%	%	n	%		
Frequency of six drinks					**17.148**	**.001**
Never	58.2	41.8	141	50.5		
< monthly	33.3	66.7	81	29.0		
Monthly	53.1	46.9	32	11.5		
Weekly & daily	28.0	72.0	25	9.0		

The ratio on no accidents/accidents of respondents reporting never to drink more than 6 drinks was 58.2%: 41.8%, while this ratio among those that replied to drink weekly and daily was 28.0%: 72.0%. There was a statistically significant difference between road traffic accident and frequency of six or more drinks in one occasion (p= .001).

Figure 7 Distribution of Road Traffic Accident by Drinking Frequency

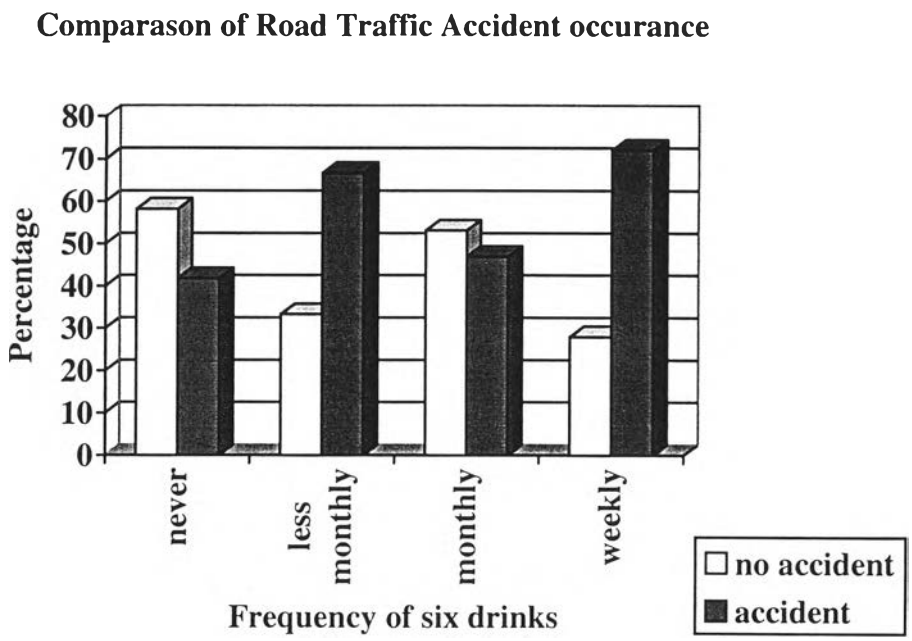

Table 26 Relationship between Drinking Occasion and Road Traffic Accidents

Variables	Road Traffic Accident				χ^2	p-value
	No accidents	Accidents	Total			
	%	%	n	%		
Drinking occasion					**14.118**	**.015**
Family event	47.1	52.9	68	24.4		
Religious festival	54.2	45.8	24	8.6		
Party with friend	52.1	47.9	146	52.0		
National holiday	71.4	28.6	7	2.5		
Weekend	0.0	100.0	5	2.0		
Any occasion	24.1	75.9	29	10.5		
Total	**133**	**146**	**279**			

The distribution of no accidents/accidents was different by drinking occasion. For example, 47.1%: 52.9% on family events, 54.2%: 11 45.8% on religious occasions, 52.1%: 47.9% when attending a party with their friends, 71.4%: 28.6% for drinking on national holidays, for drinking in weekends 0.0%: 100.0%, and drinking on any occasion 24.1%: 75.9%. There was a statistically significant difference between drinking occasion and road traffic accidents (p= .015).

Table 27 Relationship between Driving after Drinking and Road Traffic Accidents

Variables	Road Traffic Accident				$\chi 2$	p-value
	No accidents	Accidents	Total			
	%	%	n	%		
Drive after drink					**31.498**	**<.001**
Never	69.0	31.0	197	52.4		
Drive	40.2	59.8	179	47.6		

The ratio between no accident/accident among those who reported never to drive after drinking was 69%: 31.0%, whereas this ratio for those who reported to drive after drinking 40.2%: 59.8%. There was a statistically significant difference between driving after drinking and road traffic accidents (p= .001).