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Alcohol-related traffic injuries at Wang Thong Hospital in Phitsanulok Province

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Introduction : *Thai people who died from traffic accident caused by intoxicated driving about 6,601persons/year and injuried about 482,020 persons/ year.*

Objective : *To compare alcohol drinking and non-drinking is related to traffic injuries.*

Research design : *A matching case-control at the ratio of 1:2.*

Setting : *Wang Thong Hospital, Phitsanulok Province.*

Methods : *Questionnaires were used as a tool for data collection which were then analyzed by a descriptive statistics where analytic statistics was also applied by using of Odds Ratio, Chi-square and Logistic Regression.*

Results : *It was found out that alcohol-drinking drivers were 2.833 times more likely to suffer from traffic injuries than non-drinking drivers and that alcohol consumption is significantly related to suffering from traffic injury (p-value< 0.01). Moreover, the results show that the severity of the injury suffered by a drunken driver was far more serious than that of a non-drinking driver (p-value < 0.05).*

Conclusion : *Alcohol consumption is related to traffic injury.*

Keywords : *Health implication, Alcohol consumption, Traffic injury.*

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ณรงค์ศักดิ์ หนูสอน, รุ่ง วงศ์วัฒน์. ความสัมพันธ์ระหว่างพฤติกรรมการดื่มแอลกอฮอล์กับการเกิดอุบัติเหตุจราจรศึกษาในผู้ป่วยโรงพยาบาลวังทอง จ. พิษณุโลก. จุฬาลงกรณ์เวชสาร 2552 มี.ค. – เม.ย. ; 53(2): 135 - 42

บทนำ : *คนไทยเสียชีวิตจากอุบัติเหตุจราจรจากการเมาแล้วขับสูงถึงปีละ 6,601 คน และบาดเจ็บจากอุบัติเหตุจราจรที่มีสาเหตุมาจากเมาแล้วขับปีละ 482,020 คน*

วัตถุประสงค์ : *เพื่อศึกษาผลกระทบจากการบริโภคเครื่องดื่มแอลกอฮอล์ด้านอุบัติเหตุจราจร*

สถานที่ทำการศึกษา : *โรงพยาบาลวังทอง จังหวัดพิษณุโลก*

รูปแบบการวิจัย : *Matching case-control*

กลุ่มตัวอย่างที่ศึกษา : *ผู้ป่วยที่ประสบอุบัติเหตุจราจรที่มารับบริการในแผนกอุบัติเหตุฉุกเฉิน ส่วนกลุ่มควบคุมคือผู้ป่วยที่มารับบริการในแผนกอุบัติเหตุฉุกเฉินที่ไม่ใช่การประสบอุบัติเหตุจราจร*

วิธีการศึกษา : *เก็บข้อมูลด้วยแบบสัมภาษณ์โดยจับคู่ตัวแปรด้านเพศและอายุในอัตราส่วน 1: 2 และวิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณาได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน ส่วนสถิติวิเคราะห์ใช้ Odds Ratio, Chi-square และ Logistic Regression*

ผลการศึกษา : *พฤติกรรมการดื่มเครื่องดื่มแอลกอฮอล์ของผู้ป่วยกลุ่มที่ศึกษา พบว่ามีผู้ป่วยดื่มเครื่องดื่มแอลกอฮอล์ ร้อยละ 18.56 ส่วนใหญ่เป็นผู้ขับขี่ยานพาหนะ ร้อยละ 77.32 ยานพาหนะส่วนใหญ่เป็นรถจักรยานยนต์ ร้อยละ 68.05 โดยผู้ที่ดื่มแล้วขับขี่จะเกิดอุบัติเหตุจราจรมากกว่าผู้ขับขี่ที่ไม่ดื่ม 2.833 เท่า และพบว่าการดื่มมีความสัมพันธ์กับการเกิดอุบัติเหตุจราจรอย่างมีนัยสำคัญทางสถิติ (p-value < 0.01) รวมทั้งพบว่าความรุนแรงของอุบัติเหตุจราจรในกลุ่มผู้ที่ดื่มจะมีความรุนแรงมากกว่ากลุ่มที่ไม่ดื่มอย่างมีนัยสำคัญทางสถิติ (p-value < 0.05)*

สรุป : *การดื่มเครื่องดื่มแอลกอฮอล์มีความสัมพันธ์กับการเกิดอุบัติเหตุจราจร*

คำสำคัญ : *ผลกระทบต่อสุขภาพ, การบริโภคเครื่องดื่มแอลกอฮอล์, อุบัติเหตุจราจร*

In the year 2004, the Thais consumed alcohol to the amount of 8.47 liter/person/year. By considering each type of alcohol, it was found: the Thais consume spirits at an average amount of 7.13 liter/person/year which ranks Thailand 6rd in the world.[1] It is clear from the statistics that the Thais consume spirits at an enormous amount that ranks Thailand in the top-five level worldwide during the past 3 years. It can be foreseen that alcohol will give rise to greater risks of traffic injuries since high blood alcohol can bring about acute central nervous system (CNS) depression which can lead to the injury or otherwise aggressive behaviours or suicidal ideas.[2]

Ussanangkornchai[3] stated that the situation of alcohol consumption in Thailand from the macro perspective indicates that young drinkers have decreased life expectancy. Male youth drink alcohol for the first time at the age of 15 while the females drink for the first time at the age of 20. Furthermore, some of them use drugs along with alcohol. Serious consequences can also be found, i.e., health problems, illness, injuries, fighting and unsafe sexual activities.

In the year 2006, Thailand has the number of deaths that were caused by road injuries that ranks number 6th of the world. This figure increases 2 - 3 times during long public holidays. Without any measure towards an effective solution taken within 5 years, the Thai people will lose their lives in road injuries at rate of 30,000 per year wherein motorcycles will be the most likely means to bring about such loss since they are so popular in both the urban and rural areas. The result of this in-depth study regarding injuries relating to motorcycle at the incident site shows that causes of injuries are mostly from the driver's fault (53%), and from others related to the driver's cause (47%). The faults usually comprise of the 2 factors, namely, a lack of knowledge regarding safe driving, and alcohol consumption. It was found that almost half of the drivers who suffered from injuries have violated traffic lights and signs. The rest were intoxicated. Many studies have confirmed that drunken drivers are likely to loose control of the vehicle especially in the case of running curved roads during the night time. This made single-person injury 25% of the total number of injuries. Intoxication also causes higher probability in violating traffic signs and lack-of-awareness driving.[4]

Objective

To compare alcohol drinking and non-drinking is related to traffic injuries.

Materials and Methods

The method used in this study was a sex and age matched case-control study at ratio of 1:2.

Scope of the study

This research has its scope as follows:

1. Population and case group selected in this research are patients who were seeking services at Wang Thong Hospital, Phitsanulok Province from 1 July to 13 August 2007.

2. Criteria used for evaluating the severity of injuries caused by an injury are those applied by physicians. They can be categorized into 3 levels as follows: serious, medium, mild injury. (evaluation by doctors)

Population and sample group

The area of study has been selected specifically to the Wang Thong Hospital, Phitsanulok

Province since it has a network for transferring between the hospitals from the neighbouring provinces in the lower northern area. Evaluation of the case group is based on evaluation done by doctors indicated on the OPD card that the patient suffered from traffic injury. Such case group can be classified into 2 groups as follows:

Case groups are patients who suffered from a traffic injury and were seeking treatment at the emergency unit which have been suffered from traffic injury.

Controlled group are selected from patients seeking services in the Emergency Unit which have not been suffered from traffic injury during the time of study by taking into account matching with study group as to sex and age variation.

Research tools and data collection

Primary data collection was carried out by questionnaires which were designed by the researchers and then holding meeting/training relevant for relevant official in the hospital to conduct such collection of data which are as follows:

1) Case: the primary data were collected from personal records about personal data, history of injury and other information. The data were recorded by researchers assistant. The questionnaire also examines alcohol consumption behaviour according to AUDIT Test. (The AUDIT test was about: alcohol consumption behaviour, history of accident and treatment) All information of the patients suffering from traffic injury at the emergency unit during designated period of time (randomized by time) to identify the cases was analyzed.

2) Control: Primary data were collected by using the same questionnaire mentioned above for patients who showed up for other reasons rather than traffic injury in order to gather and identify case and control during the time of study (identify case-control).

Statistic and data analysis

Data analysis was carried out by the Odds ratio, Confident Interval, Chi-square and Logistic Regression Analysis by ENTER technique

Results

Regarding the general information of the patients in this study, it is found that the majority in the case group are male (60.82%) and the rest (39.18%) are female. Most of them are at the age of 11 - 20 years (24.74%) followed by 21- 30 years (21.65%) Mean of age (30.65) years. Regarding their marital status, most of them are single (56.70%), followed by married (37.11%). Regarding the level of education, most of them passed primary education or equivalent (34.02%) followed by higher studies (25.77%). Regarding the drinking behaviours of their parents, 64.95% of the patients have drinking parent. Regarding their occupations, most of them are general employees (38.14%), followed by students (27.85%); and, most of their income per month is at the level of lower than 5,000 baht per month (59.79%), followed by 5,000 – 5,999 baht per month (37.12%).

Regarding the general information of control group in this study, it is found that the majority of them are male (65.12%), and the rest (34.88%) are female. Most of them are at the age of under 11 (30.81%), followed by 41-50 years (19.19%) Mean of age (30.16) years. Regarding their marital status, most of them are single (56.98%), followed by married (41.28%). Concerning the level of education, most of them passed primary education or equivalent

(37.21%), followed by higher studies (30.23%). Regarding drinking behaviour of their parents, 61.63% the patients had drinking parents. Regarding their occupations, most of them were general employees (30.23%), followed by students (31.40%) and most of their earnings per month were at the level of lower than 5,000 baht (75.58%), followed by 5,000 – 5,999 baht per month (19.77%).

Regarding the drinking behaviours of their patients in the case group, the study shows that most of them drank 1 time per month (18.56%). Most of the case group drank beer 1 - 2 cans/day (18.56%), and less than 1 short of spirit per day (18.56%). The case group used to drink heavily 13.40% which drew concern from the public health officer, relatives or friends as drinking behaviour (18.56%). Before this illness, some of them had alcohol (17.53%) which all (100%) were beers, having at their homes (94.11%) and drinking with friends (94.11%) (Table 1).

Table 1. Drinking behaviours.

Drinking behavior	Control (n=172)		Case (n=97)	
	Number	(Percent)	Number	(Percent)
Types of Drinks and Drinking Frequency				
No drink	146	(84.88)	79	(81.44)
Drink 1 time per month	25	(14.53)	18	(18.56)
Drink 2-3 times per week	1	(0.59)	0	(0)
Beer				
No drink	146	(84.88)	79	(81.44)
1-2 cans/day	25	(14.53)	18	(18.56)
3-4 cans/day	1	(0.59)	0	(0)
Spirit				
No drink	146	(84.88)	79	(81.44)
Less than 1 short of spirit per day	23	(13.35)	18	(18.56)
More than 1 short of spirit per day	3	(1.77)	0	(0)
Heavy drinking				
No	166	(96.51)	84	(86.60)
Less than 1 time per month	5	(2.91)	13	(13.40)
1 time per month	1	(0.58)	0	(0)
Alcohol Drinking Before the illness				
No drinking	160	(93.02)	80	(82.47)
Drink	12	(6.98)	17	(17.53)
Beer	11	(91.67)	17	(100)
Local spirit	1	(8.33)	0	(0)
Drinking Place				
Home	7	(58.34)	16	(94.11)
Friend's home	2	(16.67)	1	(5.89)
Restaurant	1	(8.33)	0	(0)
Pup/bar/karaoke	1	(8.33)	0	(0)
Others	1	(8.33	0	(0)

Regarding the drinking behaviours of the patients in control group, the study shows that most of them drank1 time per month (14.53%). Most patients in of the case group drank beer 1-2 cans/ day (14.53%) and less than 1 short of spirit per day (13.35%). The frequency of heavy drinking was less than one time a month (2.91%) and it drew concern from the public health officers, relatives or friends as drinking behaviours (11.05%). Before their current illness, some of them had alcohol (6.98%) which almost all (91.67%) were beer, having at their homes (58.34%) and drinking with friends (66.66%) (Table 1).

Concerning the relationship between alcohol consumption and traffic injury, it is found that traffic injury is correlated to alcohol drinking with statistical significance (P- value = 0.009). Drunken drivers were 2.833 times more likely to have injury than non-drinking drivers. (Table 2). It is also found that severity of traffic injury is correlated to alcohol drinking with statistical significance (χ^2 = 6.76, p-value = 0.034). This means, alcohol drinkers are likely to suffer from more serious injury than non-drinkers. (Table 3).

Concerning the analysis of the correlation between independent variables and dependent variables (traffic injury), it shows that factors related to age range and alcohol drinking had an effect on dependent variables with statistical significance and can explain the variations of traffic injuries at 74.30%. The details are as follows: regarding the age range, it indicates that the case group with age range of 11 - 20 years used to suffer from traffic injury more than those over 70 years for 20.299 times; the case group with age range between 21 - 30 years used to suffer from traffic injury more than those over 70 years 7.005 times; and, the case group with age range between 61 - 70 years used to suffer from traffic injury more than those over 70 years for 9.549 times. Regarding alcohol drinking and driving, it indicates that the group of drinking drivers used to suffer from traffic injury more than the non-drinking drivers for 3.983 times. (Table 4).

Table 2. Relationship between alcohol consumption and traffic injury.

Drinking	Traffic injury	No traffic injury	Chi-square	p-value	Crude Odds ratio
	Number (%)	Number (%)			(95%CI)
Yes	17 (58.62)	12 (41.38)	6.860	0.009	2.833
No	80 (33.33)	160 (66.67)			(1.29-6.22)
Total	97 (100)	172 (100)			

Table 3. Relationship between alcohol consumption and severity of traffic injury.

Drinking	Severe	Moderate	Little	Chi-square	p-value
	Number (%)	Number (%)	Number (%)		
Yes	6 (35.29)	7 (41.18)	4 (23.53)	6.762	0.034
No	10 (12.50)	57 (71.25)	13 (16.25)		
Total	16 (16.49)	64 (65.98)	17 (17.53)		

Table 4. Analysis of the correlation between independent variable and dependent variable (traffic injury) by Logistic Regression Analysis.

Factors	Beta	Standard error	Waldstatistics	Significant	Adjust odd ratio
< 11 years	1.052	1.040	1.023	0.312	2.864
11-20 years	3.011	1.010	8.881	0.003**	20.299
21-30 years	1.947	0.942	4.267	0.039*	7.005
61-70 years	2.256	0.962	5.508	0.019*	9.549
Drinking alcohol and driving	1.382	0.519	7.097	0.008**	3.983
Constant	-2.762	2.041	1.832	0.176	0.063

Reference group is age >70 years

* p-value at 0.05, **p-value at 0.01

Discussion

From the conclusion of the study, it shows that the target group of the study are largely those who are characterized as general employees who have lower income which influents their alcohol consumption behaviour. It is found that most drinkers are male with low income. This corresponds to a study done by Suriyawongphaisarn, *et al.*[5] and that most of those who suffered from injury were using motorcycles. This corresponds to another study done by Siviroj, *et al.*[6] Attention should be paid upon roads in the vicinity of a village or Tumbon administrative regions where most of the injuries occurred, whereas roads in the municipality or in the urban areas should also be monitored.

The major cause of injury is negligence while relevant factors are normal and dry road surface, straight part of the road. Mostly they took place during the daytime with adequate light and self occurrence, according to a study done by Chartbanchai.[7] This corresponds to another study done by Virotsaengarun, *et al.*[8] Almost of drinking group were more accident by fall on one's face than non-drinking group. Moreover, it indicates that injuries which are related to alcohol consumption to the extent that those who are intoxicated face almost three times of probability of injury higher than the sober.

Conclusion

Traffic injuries are statistically related to alcohol consumption at a significant level and drunken drivers suffered almost 2.833 times higher the probability of injury than a normal driver. In this regard, it said that after taking alcohol, the drivers, especially those in adolescence, may lessen their self-control, awareness and drive negligently without thinking of any consequences and ultimately give rises to higher risk of injury. Moreover, alcohol can delay and cause ineffective decision making in the drinker and may cause more severe injury. So that, the government should concentrate about law control and The relevant offices should be making responsible and awareness of accident to the driver.

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