FACTORS INFLUENCING UNAWARENESS RIDING BEHAVIOR OF ADOLESCENT MOTORCYCLISTS IN MAHASARAKHAM PROVINCE, NORTH EASTERN REGION, THAILAND

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Outline of presentation

- Introduction
- Research question s and objectives
- Methodology
- Research results
- Discussions and recommendations

Introduction

□ Motorcycle accident is a common problem in overall of developing countries and prominently in Asian developing countries

□ In 1960 to 1990, numbers of motorcycle in Asian developing countries has raised 15% to 18% and continually

□ The situations related to increasing 44% of road traffic accident in this region

Introduction

- Thailand has about 13,000 Thais died, and nearly 90,000 injured from road traffic accident each year. The situations related to motorcycle accident for 73% to 82% of cases (Wibulpolprasert, 2007)

- The Traffic Police investigation indicated to speeding for 17.3%, suddenly cutting front of other vehicles for 12.9%, and related to drunken riding for 7.7%. The most impacted group related adolescences. 38.9% to 47.9%

- More than 50% of cases occurred in ages 15 to 29 years-old

Introduction

- Why adolescents were presented to prominent group of motorcycle accident?
- Nature of adolescent riders are immature riders
- They usually face to lack of riding abilities, poor identify and anticipate to hazardous events
- Sometime, they imperfect to vehicle control skills; especially, lacked safety riding skills, deficit on riding attentions
- Moreover, they are willingness to risky performing, and sensitively by peer influencing (Lee, 2007)

Introduction

- Normally, motorcycle riding usually uses multiple tasks and more experiences in respond to riding environment and these skills will develop following long time of riding

- Reasons supported by MAIDS's report, and indicated causes of motorcycle crashes are related to human error for 37.4%, riders' perception failure for 31.9%, and related to failure in road traffic scan and detections for 27.7% (MAIDS, 2004)

- Kasantikul (2001) found 48.8% of cases had no braking before crashing

Introduction

- Summarized form MAID study (2004) and Kasantikul(2001) found the half of cases could not detect precipitate events (Hazardous situations) before crashing, and related to unawareness riding behaviors

- Results related to finding from qualitative exploring types of risky riding behaviors of adolescent motorcyclists and mentioned to be not being awareness on road through motorcycling periods(Armartpundit et al, 2009; Watson et al, 2007)

Introduction

- Although unawareness riding behavior is clear known the caused for motorcycle accidents in adolescents, but it is unclearly known and explain about why and how they do this behavior?

- For deeply understand and clearly psychological mechanisms to this behavior, the Theory of Planned Behavior and extension theories would be used to explain unawareness riding behavior, the result can be used to guide for design awareness intervention later

Introduction and Research question?

- Research question?
- What and how are psychological related factors could explain unawareness riding behavior of adolescent motorcyclist?

Objective of this study

- To study socio-demographic factors, factors related motorcycle riding, and psychological factors under construction of the Theory of Planned Behavior and extensions were correlations to unawareness riding behavior of adolescent motorcyclists.

- To study influencing of these factors to unawareness riding behavior of adolescent motorcyclists
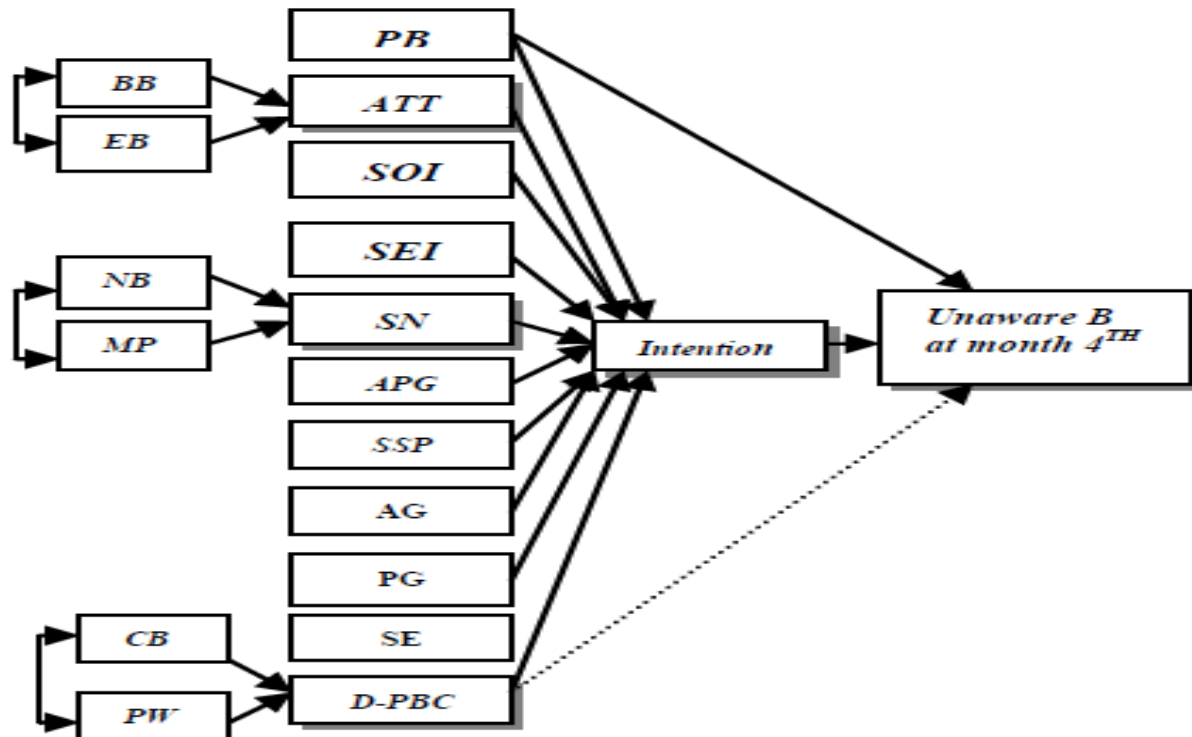
Conceptual framework

Fig.1. Conceptual framework of this study.

Methods-Design and population

- **Study design**
  - A cross-sectional analytic surveyed
- **Population**
  - Adolescent motorcyclist in Mahasarakham province, age between 15 to 24 years-old, riding ability, read and write in Thai languet, normal psychology, and live in study area more than one year

Methods-Sample methods

- Sample size was calculated for accuracy parameter estimation (Kelley and Maxwell ,2003)

- Based on predicting to unawareness riding behavior at month 4 later (after completed intention predicting version), and multiplied by design effect (design effect=2) for multi-stage random sampling

- A three stages random sampling was performed for 5 Districts (15 sub-district selected) by simple random sampling for 30villages, and gave samples size for 791

- Researcher was pluses for 10% to prevent subjects losing and uncompleted returning questionnaires. The total subjects were given for 870.

Methods-Instruments

- **The self-administered questionnaires were used, and consisted of 2 versions**

- **The first version** consisted of 13 parts; such as socio-demographic characteristics, determine of intention to unawareness riding behavior, and factors related to intention following conceptual framework

- **The second version** is unawareness riding behavior at month 4 later by after completed the first version, and consisted of 12 questions relate to unawareness riding

- The questionnaires assessed by three experts for contents validity

Methods-Instruments

- Reliability was accomplished from a pre-test by pilot testing among 35 younger motorcyclists in study area as similar characteristic as study population.

- The qualities of instruments analyzed by using Cronbach's alpha coefficient; the results for all of version not less than 0.75

Methods-Statistics

- Data collection
  - The self administered questionnaires by subjects for 1 hours in the first version, and 30 minutes for second version at 4 month later
  - Researcher assistants were checked; asked and fulfill to completion in each question through all versions
  - Entering data and cross-checking by the both of researcher and assistants.

Methods-Statistics

- Statistically assumptions were checked
- descriptive by frequency, percentage, mean and standard deviation for general demographic characteristics, and all of variables.
- ANOVA, Independent t- test and Pearson product moment correlation coefficient were used to analyzing factors related to intention and unawareness riding at month 4
- Stepwise multiple regressions were used to determine the best factors as predictors to unawareness behavior at month 4 and for intention or perceived behavioral control models predicting

Results

- Total 791 subjects were completed responding questionnaires in the both of first and second version
- The completed questionnaires for analyzing of two versions were returned for 98% and were checked and conducted to data entering and analyzing
- Socio-demographic characteristics of adolescent motorcyclists
  - Haft of them were male about 50.7%, age mean 20.1 years-old (SD= 3.2), single status 69.4%, live in rural area 59.9%, and majority of occupation was students for 50%

Results

- Holding of Thailand licenses for motorcycling 60.4%
- The motorcycle riding abilities were trained by friend, household members, or by themselves for 99.0%
- Got accident experiences 45.8%
- Mean time of riding experienced 5.5 years (SD 2.8)
- Subjects were performed actual unawareness riding behavior at month 4 after completed intentional questionnaires for 52.2-53.5% (Mean scores 43.9, SD=8.3, 95% CI: 41.9-44.3)
- Intention to perform this behavior 54.2-55.6% (mean scores 45.6, SD=12.6, 95% CI: 44.7-46.5)

Results

- Perceived behavioral control 73.6-74.5 %(mean scores 82.5, SD= 13.4, 95%CI: 81.5-83.4)

- And past behavior 33.5-34.4% (mean scores 28.5, SD=4.7, 95% CI: 28.2-28.9).

- Analyzing factors related this behavior following conceptual framework

  - found significantly correlated of unawareness riding behavior with intention (r=0.37) past behavior (r=0.71), perceived behavioral control (r= 0.81)

Results

- And found significantly correlation between independent variables were intention with
  - perceived behavioral control (r=0.44), past behavior(r=0.37) and perceived behavioral control with past behavior (r=0.37)
- The socio-economic characteristics were significant correlated to intention scores
  - Age (r=0.31,p<0.001)
  - Riding experience (r=0.27,p<0.001)
  - Holding license (F= 9.38, p<0.01)
  - Rider training experience (F=7.81, P<0.01)

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Results

- Assumption evaluations led to test for normal distribution by Kolmogorov-Smirnov statistic > 0.5, number of outliers, and multicolinearity analyzed by Tolerance value > 0.20, VIF<4 (Garson, 2008)
  - all of variables were normal distribution and none multicolinearity in between set of independent variable in regression analysis models.

Results-Stepwised MRs

Table 1 The regression coefficient in predicting model of unawareness riding behavior at month 4 (n=791).

Variable	Coefficient		95%CI	t	Sig. level
	B	β			
PBC	0.397	0.808	0.47-0.52	35.12	0.001*
PB	0.414	0.236	0.31-0.51	7.95	0.001

Constant= -0.506, **R**=0.83, R^2=0.69 (95% CI=0.65-0.72), $R^2_{Adjusted}$=0.69, **F** = 878.89, **P-value**<0.001

Results

- **Table 1 Showed** un-standardized regression coefficients (B) and standardized coefficients (β). The R of regression for full model was significantly from zero

- The best model could predict this behavior by accounted for 65%-72% of variance

- The best predictors of unawareness riding behaviors model were predicted by perceived behavioral to unawareness riding for 66.6% of variance (B=0.397(95% CI= 0.36-0.43), β= 0.19, p< 0.05)

- In addition by past behavior by accounted for 3% of variance (B=.414 (95% CI= 0.31-0.52), β= 0.236, p < 0.05)

Results

- Not enough data supported for intention to unawareness riding behavior could predict unawareness riding behavior at month 4 later (B=.005(95% CI=- 0.003-0.065), β= 0.007, p> 0.05)

- **There for unawareness riding behavior at month 4 equation = - 0.506 +.397 (perceived behavioral control)**

- **+ 0.414 (past behavior)**

Results-PBC predicted model

Table 2 The regression coefficient in predicting model of perceived behavioral control to unawareness riding behavior at month 4 (n=791).

Variable	Coefficient		95%CI	t	Sig. level
	B	β			
CB	1.773	0.808	0.47-0.52	3 2.16	0.001*
PW	0.414	0.236	0.31-0.51	12.15	0.001

Constant= 7.829, **R**=.95, R^2= 0.90(95%CI=0.88-0.91), $R^2_{Adjusted}$=0.90, **F**=3631.8, **P-value**<0.001

Results

- From table 2, displays the un-standardized regression coefficients (B) and standardized coefficients (β)
  - The R of regression for full model was significantly from zero
  - The best model could explain this variable for 90.2% of variance, the best predictors was control belief to unawareness riding behavior,
- There for equation for predicting to perceived behavioral control scores for unawareness riding behavioral model

= 7.829 + 1.773 (control belief) + 0.118 (perceived power)

Discussion

- Unawareness riding behavior in this study were unclearly for influencing by their intention;
  - related to previous studying by Watson et al. (2007) in Australia, who concluded behavioral awareness error wasn't influenced by their attitude. It did not seem to hold a positive attitude towards this risky behavior
- However, the strongest significant predictor was perceived behavioral control, and related to finding from driving related behavior studies (Elliot et al, 2003)

Discussion

- Past behavior or habit was the next predictor. This construct offered by Triandis (1980) and suggested intention is not the sole predictor of behavior, but they are supplemented by habit and facilitating conditions,

- Findings related to previous studies which are used past behavior for explanation in driving related behavior studies (Fleiter et al,2007; DePelsmacke et al, 2007) And related to nature of novice riders who usually lack of multiple tasks for riding, or higher order of risk perception, or immature perception skills (Deery, 1999; Underwood et al, 2002)

Discussion

- In contrast, Awareness behavior depend on level of consciousness and focusing by attention outward toward the environment, and inward toward self awareness; that allow by social cognitive and personality traits model(Morin, 2009) , private conceptual, public perception, self experiences,opinions and actions (Ben-Artzi et al, 1995)

- Then, human awareness behaviors usually depend on social cognitive processes, perception and growth development

Discussion

- But in adolescent brain development, the frontal cortex's lobes, in particularly the pre-frontal cortex and its links (the most important part of brain and mainly function of brain coordinating) is one of the latest parts of fully development in the third decade of life. There are significantly correlation of adolescent behaviors and this development

- The most of critical living skillful is controlled by pre-frontal cortex of brain, and there is still fully develop in those until the age at 25 (Williamson, 2008)

Discussion

- For safety motorcycle riding behaviors , there are combined of level of riding skills, riding abilities, cognitive load with ability of how to use these skills

- and likely requires by practices and improves with longer riding experiences and regarding by riding practices

- And may be fully development followed fully of brain development at age 25

Discussion

- Those are reason why unawareness motorcycle riding behavior of adolescent was unclear explained by their intention

Conclusions and recommendations

- For mitigating risky riding should improve their riding abilities in risk perception; increasing awareness riding behavior; such as, riding and hazard perception (Lane position, scanning, hazard expectation, and validity responding skills) in the term of increasing perceived behavioral control to mitigating unawareness behavior

- It seem to be added their riding experiences for perception in hazard perception

- Also, indicate to unawareness riding habits feedback and management

Conclusions and recommendations

- The contents of perceived behavioral control must allocate to demonstrate by training, and could be used road riding simulation to teach them by riding and hazardous scenes by scenes and following simulate riding practice

- It is an important to improve and enhance their riding maturities, and seem to be better than developed by their experiences in riding nature, or by their ages which meant until 25 because it may be late for them.

Conclusions and recommendations

- Moreover, in road traffic accident research could prominent encouraging awareness intention of Thai adolescent in road safety systemic planning, because it seem to be unawareness riding not perform by their volitional control, could help them cognitive awareness and encourage intention to awareness riding

Acknowledgment

Thank you for your attention

☐ **And Any questions?**

Bye?