Model development for good perceptions and skills of motorcycle riding among the Hill-Tribe youths, Mae Fah Luang District, Chiang Rai Province, Thailand

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Summary:
A cross-sectional and a quasi-experimental study designs were applied to investigate motorcycle use behaviors, and to develop a good perception and skill of motorcycle use model among the hill tribe youths in Mae Fah Luang District, Chiang Rai Province, Thailand. Totally 508 subjects were recruited into the first phase, and another 42 subjects were participated in the second phase. Results: 66.9% were females, 86.0% were aged 15-20 years old, 95.5% were high school, and 94.7% were students. Among the subjects, 445 (87.6%) did not have a license, and 79.6% had used a motorcycle of 1-5 years. Totally 346 subjects (28.1%) had had an experience of traffic accident, 29.1% of them had been cared in a hospital. In riding behaviors, 10.2% had drank alcohol during use a motorcycle, 57.1% ever used a phone during riding, and 16.2% reported that ever been traffic abused. Male's had a less proportion of having insurance than females group, and males' motorcycle had a longer use than females with a statistical significance. In average, males rode a motorcycle faster than females, and having a greater proportion of getting an accident and also greater for hospital care than females with a statistical significance. Males also had a greater proportion of drinking alcohol than females with a statistical significance. After attending the specific program, participants had a better knowledge (p-value=0.034), attitude (p-value=0.009), and perception of a good practice in motorcycle use (p-value=0.047) with a statistical significance.

Aim of research: To investigate the motorcycle use behaviors, and to develop a good perception and skill of a safety motorcycle use among the hill tribe youths.

Method of research: A mixed research design of a cross-sectional study design and a quasi-experimental study design were performed to develop a good model to reduce the morbidity and mortality rates caused by the motorcycle riding behaviors. The study population was the hill tribe people lived in Mae Fah Luang district, Chiang Rai Province. The study sample were the hill tribe youths aged 15- 25 years old and using a motorcycle as a main vehicle in daily transportation. The methodology was divided into two phases; the 1st phase was to focus on investigating the motorcycle riding behaviors whereas in the 2nd phase conducting a specific training program to develop a good model for use a motorcycle among a selected hill-tribe youths. A specific curriculum-training program was developed and provided for a selected target population. The program composed of related traffic laws and regulations, good-riding practices and perceptions, important of traffic signs, and basic engine maintenances, first aid and hospital visiting.

Results of research:
a. Results of phase I; There were 508 subjects recruited into the fist phase, 66.9% were females, 86.0% were aged 15-20 years old, 95.5% were high school, and 94.7% were students. Among the subjects, 35.0% were a motorcycle user as a rider position, and 54.4% used as a rider and a passenger, 445 (87.6%) did not have a license, and 79.6% had used a motorcycle of 1-5 years.

Regarding a motorcycle used, 64.8% had experience of motorcycle use less than 5 years, 85.6% were Honda brand, 84.8% were manual gear, 34.6% did not have an insurance, 75.0%

were a daily user, 72.6% were a group of <10 km distance user.   There were almost 32.7% who had an average speed greater than 60 km/hr, and 84.2% used a motorcycle in the evening through the night time. One hundred and eighty four subjects (36.2%) did not use helmet, 30.8 % used a full-face helmet, and 54.2% had a GMP symbol.

According to traffic accident, totally 346 subjects (28.1%) had had an experience of traffic accident at least once, 29.1% of them had been cared in a hospital, and 12.4% had a medical condition.

In riding behaviors, 10.2% drank alcohol during use a motorcycle, 57.1% ever used a phone during riding a motorcycle, 10.1% had a visual problem, and 16.2% reported that ever been traffic abused.

There were several major interesting results from the analysis of the comparison between sex. Females starting used a motorcycle in early age than males, and had a greater proportion of do not have a license group than those males with a statistical significance. Male had a less proportion of having insurance than females group, and males' motorcycle had a longer use than females' motorcycle with a statistical significance. In average, males rode a motorcycle faster than females, and having a greater of getting an accident, and also a greater proportion of hospital care than females with a statistical significance. Males also had a greater proportion of drinking alcohol than females with a statistical significance.

b. Results of phase II: After pooling all information from the first phase, a-three day of specific training curriculum was developed with five components were included into the main curriculum for training in a selected group; emotional control method, traffic laws and regulations, first aid care, essential engine maintenance, and field visit at Mae Fah Luang Hospital (emergency room). There were   42 subjects recruited into the program, and after completed attending the program found that knowledge (p-value=0.034), attitude (p-value=0.009), and practice (p-value=0.047) of motorcycle use increase statistical significance comparing before and after training program.

Table 1 Comparison of subjects' characteristics by sex

Characteristics	Total n (%)	Male n	Male %	Female n	Female %	x^2	p-value
Total	508(100.0)	168	33.1	340	66.9		
Age (years old)							
< 15	43 (8.5)	12	27.9	31	72.1	10.50	0.005*
15-20	437 (86.0)	139	31.8	298	68.2		
> 20	28 (5.5)	17	60.7	11	39.3		
Education							
No education	11 (2.1)	7	63.7	4	36.3	8.48	0.014*
Primary school	12 (2.4)	7	58.3	5	41.7		
High school	485 (95.5)	154	31.8	331	68.2		
Occupation							
Unemployed	8 9 (1.6)	6	75.0	2	25.0	11.57	0.021*
Student	481 (94.7)	152	31.6	329	68.1		
Farmer	4 (0.8)	3	75.0	1	25.0		
Employee	15 (2.9)	7	46.7	8	53.3		
Driver license							
Yes	63 (12.4)	31	49.2	32	50.8	8.04	0.006*
No	445 (87.6)	137	30.8	308	69.2		
Length of use motorcycle (year)							
< 1	2 (0.5)	2	100.0	0	0.0	6.28	0.099
1-5	343 (79.6)	114	33.3	229	66.7		

6-10	82 (19.0)	30	36.6	52	63.4		
> 10	4 (0.9)	0	0	4	100		
Position							
Rider	178 (35.0)	71	39.9	107	60.11	7.76	0.021*
Passenger	54 (10.6)	12	18.7	42	81.3		
Both	276 (54.4)	85	30.8	191	69.2		
Brand							
Honda	435 (85.6)	141	32.4	294	67.6	10.57	0.032*
Yamaha	55 (10.8)	16	29.1	39	70.9		
Kawasaki	3 (0.6)	1	33.3	2	66.7		
Vespa	5 (1.0)	2	40.0	3	60.0		
Other	10 (2.0)	8	80	2	20		
Gear							
Automatic	77 (15.2)	20	26.0	57	74.0	2.25	0.150
Manual	431 (84.8)	148	34.3	283	65.7		
Insurance							
Yes	332 (65.4)	95	28.6	237	71.4	6.91	0.011*
No	176 (34.6)	73	41.5	103	58.5		
Frequency of use per week (day)							
Everyday	381 (75.0)	126	33.1	255	66.9	8.13	0.017*
4-6	71 (14.0)	31	43.7	40	56.3		
1-3	56 (11.0)	11	19.6	45	80.4		
Distance per day (km)							
<10	369 (72.6)	117	31.7	252	68.3	2.02	0.363
10-20	117 (23.0)	43	36.8	74	63.3		
>21	22 (4.4)	8	6.4	14	63.6		
Passenger							
No	54 (10.6)	24	46.0	30	54.0	9.44	0.024*
Rarely	298 (58.7)	84	28.2	214	71.8		
Often	113 (22.3)	45	40.0	68	60.0		
Always	43 (8.5)	15	36.6	28	63.4		
Length of use (year)							
< 5	329 (64.8)	99	30.1	230	69.9	2.70	0.258
6-10	126 (24.8)	48	38.1	78	61.9		
> 10	53 (10.4)	21	39.6	32	63.4		
Frequency of maintenance							
Never	29 (5.7)	10	34.5	19	65.5	1.37	0.712
Rarely	353 (69.5)	115	32.6	238	67.4		
Often	112 (22.1)	40	35.7	72	64.3		
Always	14 (2.8)	3	21.4	11	78.6		
Average speed (km/hr.)							
< 60	342 (67.3)	99	28.9	243	71.1	16.54	0.001*
60-80	146 (28.7)	57	39.1	89	60.9		
>80	20 (4.0)	12	60.0	8	40.0		
Driving in evening or night time							
No	80 (15.8)	23	28.7	57	71.3	3.32	0.345
Evening	230 (45.3)	73	31.7	157	68.3		
Night	26 (5.1)	12	46.2	14	53.8		
Both	172 (33.9)	60	34.8	112	65.2		
Accident							
Yes	346 (28.1)	122	35.3	224	64.7	2.51	0.129
No	162 (31.9)	46	28.4	116	71.6		
Having medical care from accident							
Yes	148 (29.1)	61	41.2	87	58.8	5.77	0.016*
No	360 (70.9)	107	29.7	253	70.3		

Use helmet							
Every time	31 (6.1)	13	41.9	18	58.1	3.10	0.212
Sometime	293 (57.7)	103	35.2	190	64.8		
No	184 (36.2)	52	28.3	132	71.7		
Type of helmet							
Full face	117 (30.8)	59	50.4	58	49.6	15.11	0.001*
Open face	146 (38.4)	40	27.4	106	72.6		
Half face	117 (30.8)	40	34.2	77	65.8		
GMP helmet							
Yes	206 (54.2)	81	39.3	125	60.7	1.54	0.461
No	25 (6.6)	9	36.0	16	64.0		
Not sure	149 (39.2)	49	32.9	100	67.1		
Having medical condition							
No	445 (87.6)	146	32.8	299	67.2	8.58	0.127
Yes	63 (12.4)	29	46.1	34	53.9		
Drinking with riding							
Yes	52 (10.2)	36	69.2	16	30.8	3.39	0.066*
No	387 (76.2)	126	32.5	261	67.5		
Missing	69 (13.6)	16	23.2	53	76.8		
Frequency of drinking with riding in month							
1-2 times	37 (71.2)	24	64.9	13	35.1	17.27	0.019*
3-4 times	10 (19.2)	7	70.0	3	30.0		
>4 times	5 (9.6)	5	100.0	0	0.0		
Frequency of telephone use while riding							
No	218 (42.9)	70	32.1	148	67.9	2.28	0.515
Rarely	262 (51.6)	86	32.8	176	67.2		
Often	22 (4.3)	9	40.9	13	59.1		
Always	6 (1.2)	3	50.0	3	50.0		
Having emotional problem							
Yes	230 (45.3)	54	23.4	176	76.5	18.71	0.001*
No	278 (54.7)	114	41.0	164	58.9		
Having visual problem							
Normal	457 (89.9)	156	34.1	301	65.9	3.47	0.325
Short-sighted	41 (8.1)	10	24.4	31	75.6		
Long-sighted	4 (0.8)	1	25.0	3	75		
Astigmatism	6 (1.2)	1	16.0	5	83.8		
Ever been traffic abused							
Yes	82 (16.2)	36	43.9	46	56.1	6.19	0.017*
No	426 (83.9)	132	30.9	294	69.1		

Significant level at α=0.05

Future areas to take note of, and going forward: We should try and continue in conducting the intervention of developments a good practice of motorcycle use in the hill-tribe youths, and it should be also integrated into the school curriculum in the late of primary school years.

Means of official announcement of research results: The study will be submitted for publication in the Journal of Transport and Health and the Journal of Health Research which is one most favor in the field of health science. The results will also be discussed in the various health research communities next soon future. The model of research will be used in a class demonstration in the course of Research in Health Science for both of Underrate and Graduate studies at Mae Fah Laung University. Finally, the simplifying form of the results will be sent to the local organization in the study setting such as school and local government office.