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Relationship Between Reflective Light and Traffic Accidents Involving Power-Tillers

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= ABSTRACT =

Objectives: Traffic accidents often occur to power tillers without reflective light in the dawn, evening and night. Because of this reason, there has been a 'campaign to attach reflective lights' to power-tillers in recent years. Therefore, the authors investigated the relationship between reflective light and traffic accidents involving power-tillers.

Methods: We defined traffic accidents of power tillers as those cases of rear-end collision by a car in the dawn, evening or night. According to our definition, four cases were confirmed in Hyungok-myeon, Gyeongju and five cases in Gigye-myeon, Pohang. We selected a control group from people in the same village with similar age, sex, driving history and education.

Results: The study group contained 9 accidents and 36 non-accidents. Power tillers with reflective light were 32 cases (72.7%) of 44 cases (excluded one case due to death). Of those, the status of reflective light was 'clean' in 18 cases (56.3%). The recognition that reflective light can prevent accidents was 'Yes' in 26 cases of 44 cases (59.1%). The recognition of the 'campaign to attach reflective lights' to power tillers was 'Yes' in 38 cases of 44 cases (86.4%). The recognition about the safety regulation of driving power-tillers was 'Yes' in 32 cases of 44 cases (72.7%). Odds ratio of traffic accidents for no reflective light was 7.00 (95% CI: 1.06-58.37).

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Conclusions: Although the 'campaign to attach reflective lights' to power tillers are going on , its effectiveness may unknown. Therefore, more extensive epidemiologic study is needed into the relationship between reflective light and power tiller traffic accidents, with effective administration of the government and the attention of medical persons.

KEY WORDS: Accident, Power tiller, Reflective light, Agriculture

[10, 11]. 가 [4]. 가 5 [12]. 3 [1]. (1972-1976) 5 , 1978 [2, 3]. 가 [4, 5]. 1990 가 [6, 7]. 1. 1963 2003 2 12 2 3 78.6% , 2001 93 가 가 [8]. 3 12 , 693% 2 가 85.5% [7]. 7 (5), (2), (3) 9 (47.4%) 0.1% 0.3% 45 [9]. 36 (Fig. 1).

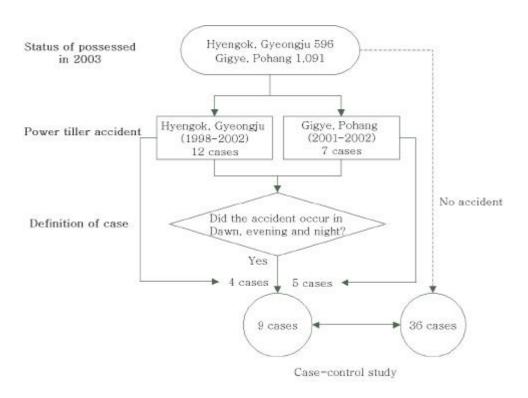


Fig. 1. The flow chart of study

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Table 1. The status of power tiller accidents based on the study definition

Cases —	Loc	Location		Driving history	Season	Place	Time	Reflective
	Si	Ri	Age (yrs)	(yrs)	Season	Flace	1 iiiie	light
1		Sohyun 2	50	30	Spring	Road	Evening	-
2	Gyeongju	Sohyun 2	58	30	Autumn	Road	Dawn	-
3		Hagu 2	71	25	Autumn	Street	Night	-
4		Hagu 2 ri	50	30	Spring	Road	Evening	-
5		Bonggae	65	15	Autumn	Road	Evening	+
6	Pohang	Goji	65	8	Summer	Road	Evening	+
7		Hwadae	65	27	Summer	Road	Dawn	-
8		Naedan	64	20	Autumn	Road	Evening	-
9		Bonggae	54	19	Spring	Road	Dawn	

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                                                        32 (72.7%)
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                                                                           25 (56.8%)
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Table 2. Power tiller accidents according to the attachment of reflective light

Reflective light -	Accident		No ac	cident	Total	
	N	%	N	%	N	%
No reflective light	7	36.8 [*]	12	63.2	19	100.0
Reflective light	2	7.7	24	92.3	26	100.0

6 (75.0%),

12 (50.0%)

18

^{*} p<0.05 by Fisher's exact test between accident and no accident groups.

Table 3. Comparison of reflective light status between accident and no accident groups

Contract of medical lines	Acc	ident	No accident		
Status of reflective light —	No.	%	No.	%	
Management with cleanness	6	75.0	12	50.0	
Management with dirtiness	0	0.0	7	29.2	
Obscure	2	25.0	5	20.8	
Total	8*	100.0	24	100.0	

^{*} excluded one case due to death.

Table 4. Comparison of recognition whether reflective light prevents power tiller accidents, recognition of the 'campaign to attach reflective lights' and safety regulation of driving power tillers between accident and no accident groups

Danagaition a	Acci	dent	No accident	
Recognitions	No.	%	No.	%
Preventive effects of reflective light				
Yes	7	87.5	19	52.8
No	0	0.0	8	22.2
Obscure	1	12.5	9	25.0
Recognition of the campaign to attach reflective lights				
Yes	8	100.0	30	83.3
No	0	0.0	6	16.7
Recognition for safety regulation of driving power tiller				
Yes	6	75.0	26	72.2
No	2	25.0	10	27.8
Total	8*	100.0	36	100.0

^{*} excluded one case due to death.

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                                                    36
                                                             32 (72.7%)
                                             6 (75.0%),
                                                             12 (50.0%)
                                              18 (56.3%)
                                        32
           가
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                                                                     7 (875%),
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19	(52.8%)	44	26	(59.1%)
44	8 (100.0% 38 (6), (86.4%)	30 (8	33%)
		,		6
(75.0%), (72.7%)	26 (7)	2.2%)	44	32
		7.7%,		
36.8%				
•	7.00(95% CI : 1	.26-38.99)		

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