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Relationship Between Reflective Light and Traffic Accidents Involving Power-Tillers

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= ABSTRACT =

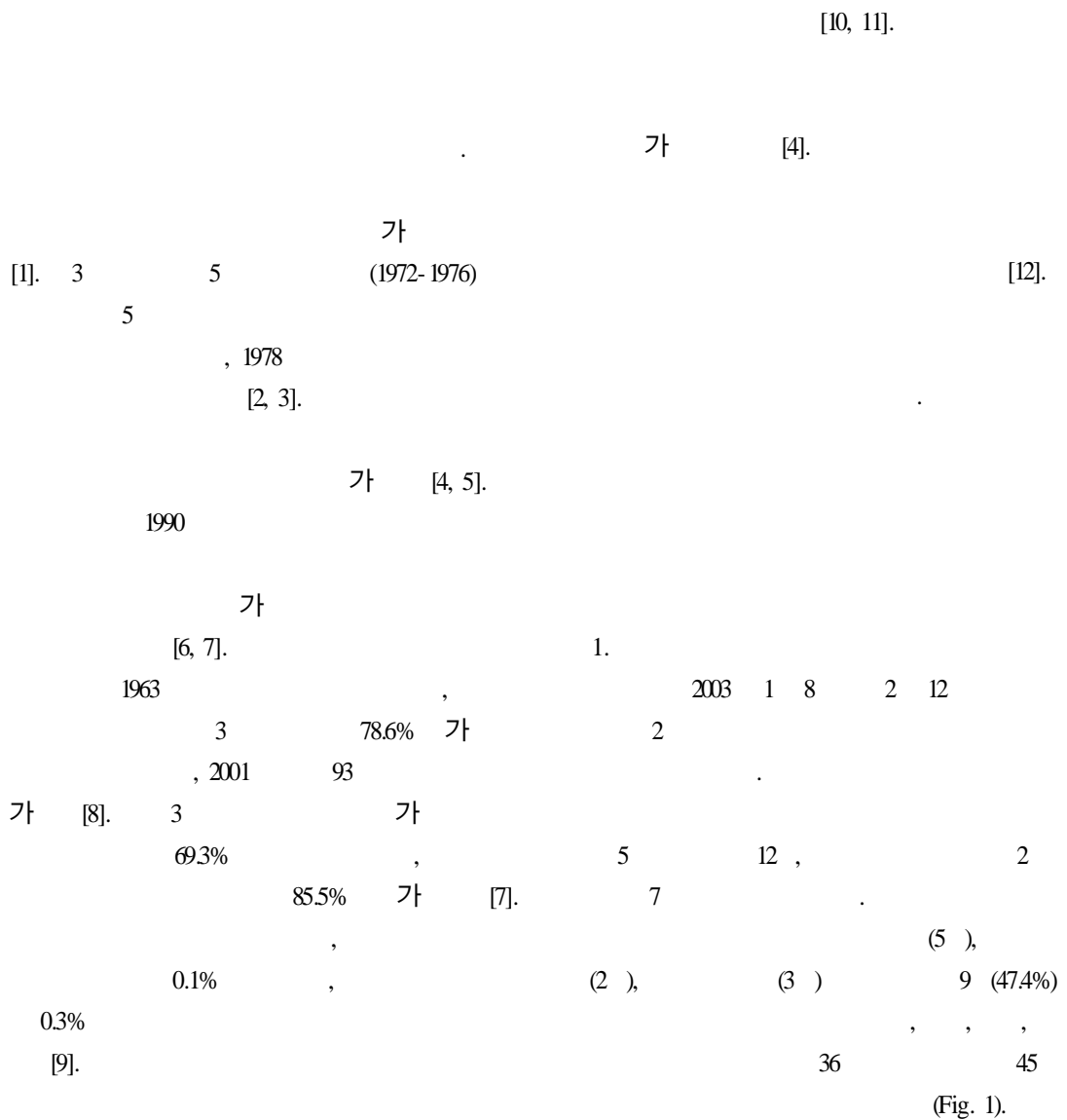
Objectives: Traffic accidents often occur to power tillers without reflective light in the dawn, evening and night. Because of this reason, there has been a 'campaign to attach reflective lights' to power-tillers in recent years. Therefore, the authors investigated the relationship between reflective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

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



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 1997 3 24 18 45 2
 Fisher's exact , 50 가
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 1
 Epi Info 6.0 Statcalc 2
 Cornfield 1998 10 19 6 2
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 1.
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 6 2 , 71
 가
 6.3% 2.1%
 1997 1 2001 12
 4 1997 1 4
 2001 12 5 1999 4 1 19 50 2
 9 (Table 1). , 50

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

Cases	Location		Age (yrs)	Driving history (yrs)	Season	Place	Time	Reflective light
	Si	Ri						
1	Gyeongju	Sohyun 2	50	30	Spring	Road	Evening	-
2		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	Pohang	Bonggae	65	15	Autumn	Road	Evening	+
6		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	-

가, 2000 3 20 5 30
 5 54
 2001 10 30 18 20
 100 m
 65
 59.7±9.7
 60.2±7.5
 6 18.3±8.8
 1997 7 25 19 30
 19.8±8.1
 65
 2.
 7.7%, 36.8%
 2000 7 3 5
 65
 7.00(95% CI:
 1.06- 58.37) (Table 2).
 3.
 8 44 (1)
 1999 9 20 17 20 24 , 8
 64 32 (72.7%)
 250 25 (56.8%)
 2 6 (75.0%), 12 (50.0%) 18

Table 2. Power tiller accidents according to the attachment of reflective light

Reflective light	Accident		No accident		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

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

(56.3%) . 8 (100.0%), 30 (83.3%) 38
 (Table 3). (86.4%)
 6 (75.0%),
 44 (1) 7 (87.5%), 26 (72.2%) 32 (72.7%)
 19 (52.8%) 26 (59.1%)
 가 .

(Table 4).

44 (1)

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

Status of reflective light	Accident		No accident	
	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

Recognitions	Accident		No accident	
	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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가 [16, 18].

72.2%가

가 가 가 .

[7]

35.3%

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[19].

가

가 Park [20]

9

36 45

가

가 9

36 44

32 (72.7%)

6 (75.0%), 12 (50.0%)

32 18 (56.3%)

가 가 7 (87.5%),

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