

ONLINE SUPPLEMENT

Usual alcohol consumption and suicide mortality among Korean elderly in rural communities: Kangwha Cohort Study

Sang-Wook Yi, Department of Preventive Medicine and Public Health, Catholic Kwandong University College of Medicine; **Myoungjee Jung**, Department of Public Health, Yonsei University Graduate School; **Heejin Kimm**, Department of Epidemiology and Health Promotion, Graduate School of Public Health, Yonsei University; **Jae-Woong Sull**, Department of Biomedical Laboratory Science, Eulji University College of Health Science; **Eunsook Lee**, Department of Nursing, Sangmyung University; **Kwang Ok Lee**, Department of Nursing, Sangmyung University; **Heechoul Ohrr**, Department of Preventive Medicine, Yonsei University College of Medicine.

Correspondence: Prof. Sang-Wook Yi, MD, PhD, Department of Preventive Medicine and Public Health, Catholic Kwandong University College of Medicine, Bumil-ro 579, Gangneung, Gangwon-do, 25601, Republic of Korea. Tel: +82-33-649-7468; Fax +82-33-641-1074; E-mail: flyhigh@cku.ac.kr

Table S1. Crude death rates and hazard ratios of suicide death by other risk factors in Korean elderly.

Variables	Classification	Person-years	No. suicide	Crude suicide rate ^a (95% CI)	Unadjusted		Multivariable-adjusted	
					p-value	HR (95% CI)	p-value	HR ^b (95% CI)
Age at enrollment	One-year increase	88,376	61	69 (54-89)	0.916	1.00 (0.96-1.05)	0.598	1.01 (0.97-1.06)
Gender	Women	55,396	24	43 (29-64)		1.00 (Reference)		1.00 (Reference)
	Men	32,980	37	112 (81-155)	<0.001	3.01 (1.8-5.05)	0.322	1.49 (0.68-3.25)
Smoking	Current smoker	34,358	37	108 (78-148)	<0.001	3.25 (1.88-5.61)	0.037	2.09 (1.05-4.18)
	Past smoker	3,458	4	116 (45-297)	0.028	3.32 (1.13-9.73)	0.201	2.13 (0.67-6.82)
	Never smoker	50,559	20	40 (26-61)		1.00 (Reference)		1.00 (Reference)
Body mass index, kg/m ²	<18.5	5,910	2	34 (9-123)	0.374	0.53 (0.13-2.17)	0.292	0.46 (0.11-1.93)
	18.5-24.9	65,645	49	75 (56-99)		1.00 (Reference)		1.00 (Reference)
	≥25.0	16,821	10	59 (32-109)	0.417	0.75 (0.38-1.49)	0.707	1.14 (0.57-2.31)
Hypertension	No	40,080	33	82 (59-116)		1.00 (Reference)		1.00 (Reference)
	Yes	48,296	28	58 (40-84)	0.358	0.79 (0.48-1.31)	0.215	0.72 (0.43-1.21)
Self-rated health	Good or fair	69,256	42	61 (45-82)		1.00 (Reference)		1.00 (Reference)
	Poor	19,120	19	99 (64-155)	0.057	1.69 (0.98-2.91)	0.024	1.88 (1.09-3.26)
Marital status	Living with a spouse	60,492	52	86 (66-113)		1.00 (Reference)		1.00 (Reference)
	Not living with a spouse	27,884	9	32 (17-61)	0.013	0.41 (0.2-0.83)	0.203	0.60 (0.27-1.32)
Education	Ever	33,967	26	77 (52-112)		1.00 (Reference)		1.00 (Reference)
	Never	54,409	35	64 (46-89)	0.606	0.87 (0.53-1.45)	0.235	1.42 (0.8-2.52)
Occupation	Non-agriculture	15,670	6	38 (18-84)		1.00 (Reference)		1.00 (Reference)
	Agriculture	72,706	55	76 (58-98)	0.110	1.99 (0.86-4.62)	0.172	1.81 (0.77-4.24)

CI, confidence interval; HR, hazard ratio

^a Death rate per 100,000 person-years

^b Variables included in the Cox model were all variables in the table and alcohol intake status (current drinker, non-drinker).

Table S2. Adjusted hazard ratios of suicide death by alcohol intake-related variables according to different models in Korean elderly during 1985-2008 (Sensitivity analysis).

Variables	Classification	Model1 ^a		Model2 ^b		Model3 ^c	
		p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)
Alcohol intake status	Non-drinker		1.00 (Reference)		1.00 (Reference)		1.00 (Reference)
	Current drinker	0.107	1.68 (0.9-3.14)	0.112	1.66 (0.89-3.11)	0.108	1.67 (0.89-3.13)
Alcohol intake frequency	Non-drinker		1.00 (Reference)		1.00 (Reference)		1.00 (Reference)
	4 or less days a month	0.792	1.13 (0.45-2.84)	0.778	1.14 (0.46-2.85)	0.760	1.15 (0.46-2.89)
	2-6 days a week	0.257	1.58 (0.72-3.49)	0.277	1.55 (0.7-3.41)	0.271	1.56 (0.71-3.43)
	Daily	0.003	3.65 (1.57-8.47)	0.003	3.54 (1.53-8.18)	0.003	3.50 (1.51-8.09)
Alcohol intake frequency	One drinking day increase per week	0.006	1.17 (1.05-1.31)	0.007	1.17 (1.04-1.31)	0.008	1.17 (1.04-1.31)
Alcohol intake amount, g alcohol/drinking day (drink/drinking day) ^d	Non-drinker		1.00 (Reference)		1.00 (Reference)		1.00 (Reference)
	Below 70 g (<5 drinks)	0.882	1.06 (0.47-2.42)	0.894	1.06 (0.47-2.4)	0.898	1.05 (0.46-2.39)
	70-139 g (5-9 drinks)	0.027	2.42 (1.1-5.31)	0.028	2.42 (1.1-5.3)	0.025	2.46 (1.12-5.41)
	140 g or over (≥10 drinks)	0.029	2.81 (1.11-7.11)	0.030	2.79 (1.1-7.07)	0.030	2.79 (1.1-7.06)
Alcohol intake amount	5 drink (70 g) increase per drinking day	0.002	1.38 (1.12-1.69)	0.002	1.38 (1.12-1.69)	0.002	1.38 (1.12-1.69)
Alcohol intake amount, g alcohol/week (drink/week) ^d	Non-drinker		1.00 (Reference)		1.00 (Reference)		1.00 (Reference)
	Below 70 g (<5 drinks)	0.952	0.97 (0.38-2.46)	0.953	0.97 (0.39-2.45)	0.956	0.97 (0.39-2.46)
	70-209 g (5-14 drinks)	0.559	1.38 (0.47-4.04)	0.574	1.36 (0.47-3.98)	0.554	1.38 (0.47-4.05)
	210-419 g (15-29 drinks)	0.028	2.85 (1.12-7.26)	0.028	2.84 (1.12-7.19)	0.030	2.80 (1.11-7.11)
Alcohol intake amount	420 g or over (≥30 drinks)	0.011	2.96 (1.28-6.83)	0.013	2.89 (1.25-6.67)	0.012	2.91 (1.26-6.72)
	140 g (10-drink) increase per week	<0.001	1.12 (1.06-1.19)	<0.001	1.12 (1.06-1.19)	<0.001	1.12 (1.06-1.19)

CI, confidence interval; HR, hazard ratio

a In order to reduce overfitting, risk factors with the model p value < 0.2 for the Wald test in the univariate Cox analysis were included in the multivariable Cox model; those factors were sex, smoking status, self-rated health compared to the same age group, marital status, and occupation.

b Due to a potential violation of the proportional assumption from hypertension, marital status, and a dummy variable of BMI (≥ 25 kg/m²), these three variables were excluded, and age at enrollment, sex, smoking status, self-rated health compared to the same age group, education, and occupation were adjusted for.

- c Due to a potential violation of the proportional assumption from hypertension, marital status, and a dummy variable of BMI ($\geq 25 \text{ kg/m}^2$), a Cox model stratified by marital status was applied after adjustment for age at enrollment, sex, smoking status, self-rated health compared to the same age group, education, and occupation (since marital status [p=0.013] was associated with suicide death in univariate Cox analysis, while BMI [p=0.51] and hypertension [p=0.36] were not).
- d 1 standard drink was considered to be approximately 14 g according to the National Institute on Alcohol Abuse and Alcoholism of the US.

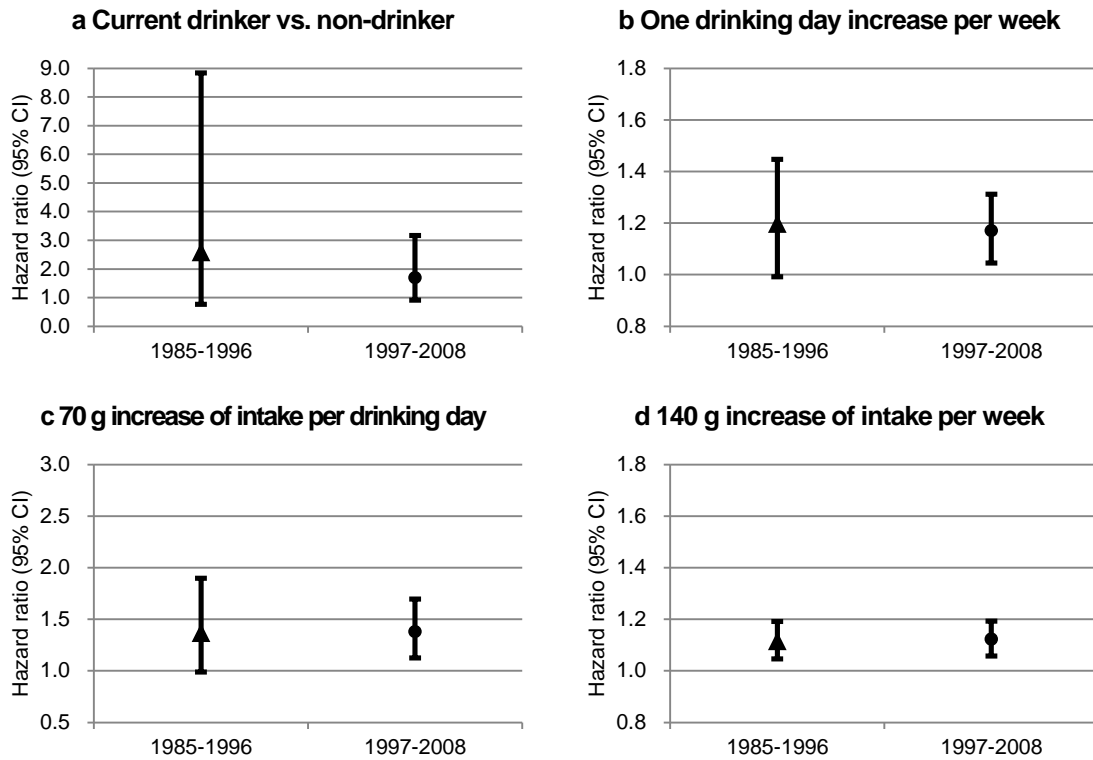


Figure S1. Hazard ratios of suicide death by alcohol consumption-related variables according to follow-up period (1985-1996, 1997-2008). Co-variables included in the Cox model were age at enrollment (continuous variable), sex (men, women), smoking status (current smoker, past smoker, never smoker), body mass index (kg/m^2 ; <18.5 , $18.5-24.9$, ≥ 25), hypertension (measured blood pressure $\geq 140/90$ mmHg or on regular medication; yes, no), self-rated health compared to the same age group (good or fair, poor), marital status (living with a spouse, not living with a spouse), education (ever, never), and occupation (non-agriculture, agriculture).