

## Concurrent use of Korean Medicine and Western Medicine:<sup>†</sup> findings from the 2008 National Survey

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### Abstract

**Objectives :** The concurrent use of Korean Medicine (KM) and Western Medicine (WM) for the management of disease are increasing. In this study, the factors determining the choice of concurrent use of KM and WM was investigated based on national survey data for the public.

**Methods :** Survey data from 1239 people with experience treating diseases with KM were utilized for this study. The national survey data were gathered using e-mail and face-to-face interviews between December 2007 and January 2008.

**Results :** Among people who had been treated with KM, 819 (66%) used both KM and WM to the treat same disease. Multivariable analysis revealed that concurrent users of KM and WM were significantly associated with age 40-69 (OR=1.43, 95% CI=1.12-1.82), university education or higher (OR=1.34; 95% CI=1.05-1.71), enhanced health status (OR = 0.47, 95% CI=0.35-0.62) and unsatisfied with WM (OR = 1.71, 95% CI=1.02-2.87). The respondents that reported KM was more effective than WM among concurrent users of KM and WM were significantly associated with being an office worker (OR=1.78, 95% CI=1.25-2.53), age 40-69 (OR = 0.62, 95% CI=0.44-0.86), unsatisfied with WM (OR=2.61, 95% CI=1.51-4.50) and overall satisfied with KM (OR=8.38, 95% CI=5.65-12.44)

**Conclusions :** This study showed that two-thirds of KM user were concurrent user of KM and WM, and some influential factors determined the choice of a concurrent use of KM and WM. Therefore, Korean Medicine Doctors should consider the possibility of concurrent use, need to know the information on the benefits and risks of concurrent use.

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**Key words :** Concurrent user, Korean Medicine, Western Medicine, National survey

**Abbreviations :** Korean Medicine, KM; Western Medicine, WM

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## I. Introduction

As the use of complementary and alternative medicine for treatment of various diseases proliferates<sup>1, 2)</sup>, the concurrent use of Korean Medicine (KM) and Western Medicine (WM) for the management of disease are increasing because of patient preference and collaboration of doctors who practice WM with those who practice KM.

To date, the concurrent utilization rate of KM and WM based on representative patient-based studies is not known. However, there have been reports of the concurrent utilization rate of KM and WM from some hospitals. For example, 56% of children with developmental disorders<sup>3)</sup>, 18.8% of children with epilepsy<sup>4)</sup>, 24.7% of cancer patients<sup>5)</sup>, 32.1% of patients with several diseases<sup>6)</sup>, and 33.9% outpatients with musculoskeletal disorders<sup>7)</sup> received treatment with KM and WM.

In addition, the concurrent utilization rate of KM and WM in the KM hospital were particularly higher, with 49.5% of cancer patients<sup>5)</sup> and 45.6% of patients with several diseases receiving this treatment<sup>6)</sup>. However, most studies did not determine factors associated with concurrent use of KM and WM, but rather a current utilization

rate of KM and WM.

Because the Republic of Korea has a dual medical system consisting of both WM and KM that utilizes mutually exclusive licenses, both the doctors of WM and KM are incorporated into the public health care system<sup>8, 9)</sup>. However, there is a lack of related research regarding the concurrent use of KM and WM.

Therefore, this study was conducted to investigate the factors determining the choice of a concurrent use of KM and WM and factors associated with concurrent use of KM and WM using national representative survey data.

## II. Methods

### 1. Data source and study population

This study is the secondary analysis of national survey conducted by e-mails (1880 adults under the age 60) and face-to-face interviews (120 adults over the age of 60) between December 2007 and January 2008 (10, 11). Among 2,000 people, I analyzed individual data from 1,239 people with experience treating diseases with KM (Figure 1).

This study was approved by the Institutional Review Board of the Dongguk University, Gyeongju

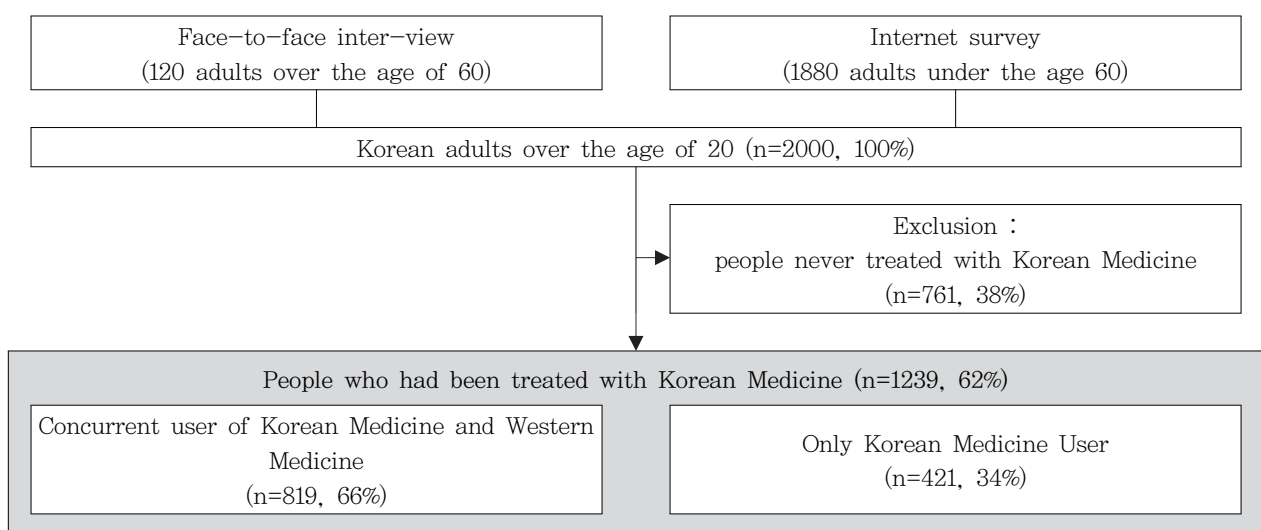


Figure 1. Participant selection flow

campus.

## 2. Statistical analysis

Chi-squared tests were used to compare differences in outcomes between concurrent users of KM and WM and monotherapy users of KM treatment without WM treatment. Univariate and multivariable logistic regression analyses were conducted with stepwise selection for each dependent variable to evaluate the independent variables. A two-sided p-value of  $< 0.05$  was considered to indicate statistical significance in this study. Statistical analyses were conducted using Stata/MP version 14 (StataCorp LP, College Station, Texas, USA).

## III. Results

### 1. People who had been treated with KM

People experienced in treating diseases with KM tended to be female (53.75%), office workers (42.56%), married (70.38%), 40–69 years of age (52.62%), with lower annual household income (less than \$40,000: 44.96%), with a university or higher education (50.04%), metropolitan residents (52.38%), and the main reason for KM use was for treating illness (57.14%) (Table 1, Table 2).

Table 1. Demographic characteristics of the respondents (n=1,239)

	Total (n=1,239)	concurrent user of KM and WM (n=819)	only KM user (n=421)	P
Sex				0.1568
Male	573(46.25%)	367(64.05%)	206(35.95%)	
Female	666(53.75%)	452(67.87%)	214(32.13%)	
Occupation				0.3313
Unemployed	439(37.75%)	293(66.74%)	146(33.26%)	
Production worker	229(19.69%)	142(62.01%)	87(37.99%)	
Office worker	495(42.56%)	334(67.47%)	161(32.53%)	
Marital status*				0.0207
Unmarried	367(29.62%)	225(61.31%)	142(38.69%)	
Married	872(70.38%)	594(68.12%)	278(31.88%)	
Age (years)*				0.0001
<40	587(47.38%)	356(60.65%)	231(39.35%)	
40–69	652(52.62%)	463(71.01%)	189(28.99%)	
Annual household income*				0.0487
<\$40,000	557(44.96%)	368(66.07%)	189(33.93%)	
\$40,000<\$60,000	488(39.39%)	309(63.32%)	179(36.68%)	
>\$60,000	194(15.66%)	142(73.20%)	52(26.80%)	
Education*				0.0214
Less than college	619(49.96%)	390(63.00%)	229(37.00%)	
University or higher	620(50.04%)	429(69.19%)	191(30.81%)	
Region				0.1493
Metropolitan	649(52.38%)	417(64.25%)	232(35.75%)	
Provinces	590(47.62%)	402(68.14%)	188(31.86%)	

Abbreviations: KM, Korean Medicine; WM, Western Medicine

Table 2. Reason for utilization and satisfaction with KM therapy (n=1,239)

	Total (n=1,239)	Concurrent user of KM and WM (n=819)	Only KM user (n=421)	P
Reason for KM use*				<0.0001
Treat illness	708(57.14%)	499(70.48%)	209(29.52%)	
Enhance health status	292(23.57%)	150(51.37%)	142(48.63%)	
Unsatisfied with WM	102(8.23%)	82(80.39%)	20(19.61%)	
Personalized Medicine	137(11.06%)	88(64.23%)	49(35.77%)	
Reason for satisfaction with TKM				
Overall satisfaction				0.4952
No	491(39.63%)	319(64.97%)	172(35.03%)	
Yes	748(60.37%)	500(66.84%)	248(33.16%)	
Inexpensive				0.0640
No	1178(95.08%)	772(65.53%)	406(34.47%)	
Yes	61(4.92%)	47(77.05%)	14(22.95%)	
Treatment effectiveness*				0.0397
No	625(50.44%)	396(63.36%)	229(36.64%)	
Yes	614(49.56%)	423(68.89%)	191(31.11%)	
Medical facility				0.2775
No	1174(94.75%)	772(65.76%)	402(34.24%)	
Yes	65(5.25%)	47(72.31%)	18(27.69%)	
Treatment method/theory				0.8371
No	913(73.69%)	602(65.94%)	311(34.06%)	
Yes	326(26.31%)	217(66.56%)	109(33.44%)	
Doctor's kindness				0.5735
No	1028(82.97%)	676(65.76%)	352(34.24%)	
Yes	211(17.03%)	143(67.77%)	68(32.23%)	

## 2. Concurrent user of KM and WM

Among people who had been treated with KM, 819 (66%) used both KM and WM to the treat same disease (Figure 1). Table 1 and table 2 also shows that concurrent use of KM and WM were significantly associated with marital status, age, annual household income, education and reason for KM use.

## 3. Factor associated with concurrent use of KM and WM in multivariable analysis

Multivariable analysis indicated that marital status, annual household income, and reason for satisfaction with KM were not significant factors. However, the following variables maintained significant associations with concurrent users of KM and WM in the multivariable analysis: age

Table 3. Multivariable logistic regression analyses for concurrent users of KM and WM (n=819)

	Odds ratio	95% CI
Marital status		
Unmarried		
Married	N/S	
Age(years)*		
<40	1.00	
40-69	1.43	(1.12-1.82).
Annual household income		
<\$40,000		
\$40,000<\$60,000		
>\$60,000	N/S	
Education*		
Less than college	1.00	
University or more	1.34	(1.05-1.71)
Reason for KM use*		
Treat illness	1.00	
Enhance health status	0.47	(0.35-0.62)
Unsatisfied with WM	1.71	(1.02-2.87)
Personalized medicine	0.74	(0.51-1.10)
Reason for satisfaction with KM		
Treatment effectiveness		
No		
Yes	N/S	

Note. All binary variables significant at  $p < 0.05$  in the Chi-square test were subjected to multivariable logistic regression analysis with stepwise selection.

40-69 (OR=1.43, 95% CI=1.12-1.82), university education or higher (OR=1.34; 95% CI=1.05-1.71), and reason for KM use (treat illness being referenced, OR=0.47, 95% CI=0.35-0.62 for enhanced health status; OR=1.71, 95% CI=1.02-2.87 for unsatisfied with WM) (Table 3).

#### 4. Subgroup analysis of concurrent users of KM and WM

A total of 300 (36.63%) concurrent users of KM and WM responded that KM was a more effective treatment than WM among 819 concurrent users of KM and WM. These 300 respondents tended to be female (53.00%), office workers (51.00%), married (68.67%), 40-69 years of age

(51.67%), lower annual household income (< \$40,000: 45.33%), have a university education or higher (56.33%), be metropolitan residents (51.67%), and utilize KM to treat illness (53.00%). The following variables showed significant associations with these respondents in the multivariable analysis: office worker (OR=1.78, 95% CI=1.25-2.53), age 40-69 (OR = 0.62, 95% CI=0.44-0.86), reason for KM use (treat illness being referenced, OR = 2.61, 95% CI=1.51-4.50 for unsatisfied with WM) and overall satisfied with KM (OR=8.38, 95% CI=5.65-12.44) (Table 4).

## IV. Discussion

The results of this study revealed that con-

Table 4. Factors associated with belief that KM was more effective than WM among concurrent users of KM and WM (n=300)

	KM was more effective than WM(N=300)	Univariate		Multivariable	
		Odds ratio	95% CI	Odds ratio	95% CI
Sex					
Male	141(47.00%)	1.00			
Female	159(53.00%)	0.87	(0.65–1.16)	N/S	
Occupation*					
Unemployed	100(33.33%)	1.00		1.00	
Production worker	47(15.67%)	1.001	(0.66–1.52)	1.23	(0.77–1.96)
Office worker	153(51.00%)	1.94	(1.41–2.67)	1.78	(1.25–2.53)
Marital status					
Unmarried	94(31.33%)	1.00			
Married	206(68.67%)	0.74	(0.54–1.01)	N/S	
Age(years)*					
<40	155(51.67%)	1.00		1.00	
40–69	145(48.33%)	0.59	(0.44–0.79)	0.62	(0.44–0.86)
Annual household income					
<\$40,000	136(45.33%)	1.00			
\$40,000–\$60,000	113(37.67%)	0.98	(0.72–1.35)	N/S	
>\$60,000	51(17.00%)	0.96	(0.64–1.43)	N/S	
Education					
Less than college	131(43.67%)	1.00			
University or higher	169(56.33%)	1.29	(0.97–1.71)	N/S	
Region					
Metropolitan	155(51.67%)	1.00			
Provinces	145(48.3%)	0.95	(0.72–1.27)	N/S	
Reason for KM use*					
Treat illness	159(53.00%)	1.00		1.00	
Enhance health status	61(20.33%)	1.47	(1.01–2.14)	1.14	(0.75–1.73)
Unsatisfied with WM	45(15.00%)	2.60	(1.62–4.18)	2.61	(1.51–4.50)
Personalized medicine	35(11.67%)	1.41	(0.89–2.25)	1.20	(0.72–2.01)
Reason for Satisfaction with TKM					
Overall satisfaction*					
No	37(12.33%)	1.00		1.00	
Yes	263(87.67%)	8.46	(5.76–12.43)	8.38	(5.65–12.44)
Inexpensive					
No	269(89.67%)	1.00			
Yes	31(10.33%)	3.62	(1.95–6.74)	N/S	
Treatment effectiveness					
No	73(24.33%)	1.00			
Yes	227(75.67%)	5.12	(3.73–7.04)	N/S	
Medical facility					
No	274(91.33%)	1.00			
Yes	26(8.67%)	2.25	(1.24–4.07)	N/S	
Treatment method/theory					
No	181(60.33%)	1.00			
Yes	119(39.67%)	2.82	(2.05–3.89)	N/S	
Doctor's kindness					
No	222(74.00%)	1.00			
Yes	78(26.00%)	2.45	(1.70–3.54)	N/S	

Note. All binary variables significant at  $p<0.05$  in the Chi-square test were subjected to multivariable logistic regression analysis with stepwise selection.

current users of KM and WM were positively related to being over 40 years, having a university education or higher, and a purpose of concurrent use of KM and WM due to being unsatisfied with WM rather than to treat illness. In addition, among the concurrent users of KM and WM, a response indicating that KM was more effective than WM was positively related to being officer workers, younger than 40 years, or dissatisfaction with WM rather than to treat illness, as well as overall satisfaction with KM.

Previous studies have not reported factors associated with utilization and satisfaction of concurrent users of WM and KM or complementary, alternative and integrative medicine. There are just some studies of factor analysis about utilization of KM or complementary, alternative and integrative medicine. The determinant factor leading to selection of KM instead of WM was being an urban resident, which resulted in someone being 1.441 times more likely to use KM than rural residents, whereas age and education were not significant factors<sup>12)</sup>. These findings differ from those of a systematic review of Australians, which showed the factors associated with complementary medicine use by the Australian population were female, middle-aged with a higher education, higher annual income and rural residents<sup>13)</sup>. In addition, concurrent use of prescription WM drugs and herbal medicinal products has great potential for herb-drug interactions, which may cause augmented or antagonized effects of prescription drugs, resulting in unexpected clinical outcomes. There have been several recent investigations of herb-drug interactions. For example, aniseed (*Pimpinella anisum* L., Apiaceae) decreased the peak plasma concentration of acetaminophen in rats<sup>14)</sup>, while *sinensis radix/angelicae dahuricae radix ginkgo* (*Ginkgo biloba*) decreased blood concentrations of omeprazole<sup>15)</sup>, and co-administration of *scutellariae radix* extract and mefenamic acid potentiated an anti-inflammatory effect<sup>16)</sup>.

It should be noted that this study was limited in that factors were not analyzed according to diseases. Therefore, further research is needed to identify factors that determine concurrent use of KM and WM for each disease. In addition, because the analytical data has some limitations such as the survey timing and sampling method, further well-designed research using more recent nationally representative data is needed.

## V. Conclusions

This study showed that two-thirds of KM user were concurrent user of KM and WM, and some influential factors determined the choice of a concurrent use of KM and WM. Therefore, medical professionals should consider the possibility of concurrent use, need to know the information on the benefits and risks of concurrent use. And, further research should be conducted to identify the clinical advantage and disadvantage for concurrent user.

### Conflicting Interests

The author has no conflicts of interest to declare with respect to the authorship and/or publication of this article.

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