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의학석사 학위논문

**Epidemiological study of
complementary and alternative
medicine use for the improvement of
sexual function in young Korean men**

한국의 젊은 성인 남성에서 성기능
향상을 위한 대체보완요법 사용에
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2012년 5월

서울대학교 대학원
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A thesis of the Master's Degree

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May 2012

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Seoul National University
College of Medicine
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**Epidemiological study of
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지도 교수 김 수 응

이 논문을 의학석사 학위논문으로 제출함

2012년 5월

서울대학교 대학원

의학과 비뇨기과학과정

최 우 석

최우석의 의학석사 학위논문을 인준함

2012년 6월

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ABSTRACT

Introduction: Few studies have been conducted on complementary and alternative medicine (CAM) for improving sexual function. We investigate CAM use for improving sexual function and propose a model explaining what leads to CAM use.

Methods: Participants between 20 and 59 years old were recruited from an Internet research panel representing young Korean males. Participants were asked to complete questionnaires on demographic details, attitude toward sexual activity, sexual function, CAM use and desire to use CAM. Subjects were classified into 3 subgroups. Men who use CAM, men who desire but do not actually use CAM and men who neither use nor desire to use CAM were allocated to groups A (actual user), P (potential user) and N (non-user), respectively.

Results: Among 443 subjects with a mean age of 39.2 ± 10.2 years, 49 (11.1%) used CAM for improving sexual function (Group A). Dietary supplements were most commonly used. Overall mean satisfaction for the used CAM was $55.5 \pm 24.2\%$. There were 192 (43.3%) men who desired but did not use CAM (Group P). According to multivariate analysis, risk factors for desiring CAM included drinking (OR=2.24, 95%CI=1.28-3.91), regarding sex a very important part of life (OR=2.16; 95%CI=1.41-4.09), self-reported erectile dysfunction (ED) (OR=5.08; 95%CI=1.60-16.1), and self-reported premature ejaculation (PE) (OR=3.34; 95%CI=1.65-6.76). Risk factors for actual CAM use included smoking (OR=2.49; 95%CI=1.11-5.61), a strongly positive attitude toward sexual activity (OR=3.77; 95%CI=1.42-9.99), low RE (role emotion) points on the SF-36

(OR=0.98; 95%CI=0.97-0.99) and self-reported non-PE (OR=0.22; 95%CI=0.06-0.73).

Conclusions: Smoking, drinking, self-reported ED, self-reported PE, attitude toward sexual activity, and emotional problems play roles in making decisions concerning CAM use.

* This work is published in the Journal of Sexual Medicine (Choi WS, Song SH, Son H. Epidemiological Study of Complementary and Alternative Medicine (CAM) Use for the Improvement of Sexual Function in Young Korean Men: The Korean Internet Sexuality Survey (KISS), Part II. J Sex Med. 2012 May 22; DOI: 10.1111/j.1743-6109.2012.02790.x.).

Keywords: Alternative Medicine, Complementary Medicine, Male Sexuality, Epidemiology

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INTRODUCTION

The US National Center for Complementary and Alternative Medicine (NCCAM) defines complementary and alternative medicine (CAM) as “a group of diverse medical and healthcare systems, practices and products that are not presently considered to be part of conventional medicine” (1).

The prevalence and costs of alternative medicine in the general population is increasing worldwide. In the United States, CAM use increased from 33.8% in 1990 to 42.1% in 1997 (2). In East Asia, the exact prevalence of CAM has not been well established but may be presumed to be considerably higher than in the West, since many well-known CAM therapies originated in East Asia. In Japan, 76% of the general population has been reported to use some form of CAM (3). Recent surveys have also shown that CAM is widely used in Korea and that its use ranges from 29% to 53%, depending on patient populations (4). Furthermore, approximately 29% of out-of-pocket healthcare expenditures in Korea are spent on CAM therapies (4).

Although relatively few studies have focused on CAM use with respect to improving sexual function, the prevalence of CAM use may be considerable due to the increased prevalence and impact of sexual problems worldwide. There are various reasons that men who wish to improve sexual function use CAM rather than consult doctors. First, men experiencing changes in erectile function tend to reject the notion that erectile dysfunction (ED) is a medical condition and consider such bodily changes a normal part of life (5). Second, many are unwilling to discuss such changes with doctors (6). Third, some men have reported disliking the

“mechanized” feeling of drug-mediated erections (7). Meanwhile, CAM has advantages including easy access without requiring consultation. Therefore, it is presumed that some men experiencing changes in erectile function may favor CAM over conventional medicine. However, as far as we know, there has not been any report on the number of people who desire to use CAM for improving sexual function. Desire does not reflect actual CAM use, but those who do so desire could be considered a potential risk group for CAM use.

The aim of this study was to investigate CAM use and the desire to use CAM as a means of improving sexual function in the young Korean male population.

MATERIALS AND METHODS

The Korean Internet Sexuality Survey was designed to evaluate the general prevalence of sexual dysfunctions, relevant help-seeking behaviors, and health-related quality of life in the younger generation (aged 20-59). The Internet survey was conducted in March 2011. We employed a previously demonstrated methodology used by Song et al. in 2008 (8). Subjects were recruited from men enrolled in the INR (an Internet research company based in Seoul). The research panel represents a national population-based Purposive Quota Sample of men who agreed to participate in Internet surveys. Invitation e-mails were sent to 30,000 men between the ages of 20 and 59, who were requested to visit a web portal. Participants were asked to complete a questionnaire consisting of 6 sections. The first section addressed demographic details and medical history, including age, weight, height, marriage, occupation, income, smoking, drinking, illnesses and medications. The second section concerned CAM use, types of CAM used, satisfaction with the used CAM (recorded as points out of 10), and the associated costs. Those who had never used CAM were asked whether they desired to use CAM. The third section addressed self-reported sexual function and attitude toward sexual activity, including general attitude to sexual activity (strongly negative / negative / neutral / positive / strongly positive) and importance of sexual activity in terms of quality of life (not important / almost not important / neutral / important / very important). Sections 4 through 6 consisted of the following questionnaires, which have been validated and adopted in Korean (9-11): International Index of

Erectile Function-5 (IIEF-5) (12) Premature Ejaculation Diagnostic Tool (PEDT) (13) and Short Form 36 Health Survey (SF-36) (14). All participants who completed the questionnaires received an Internet coupon equivalent of one dollar as compensation.

The IIEF-5 and PEDT were employed to objectively confirm that responders had ED (erectile dysfunction) or PE (premature ejaculation), and the SF-36 was employed to investigate health-related quality of life (HRQOL) and general concept of health as viewed by the participants. This study divided the severity of ED according to IIEF into normal (≥ 22) and mild to severe (< 22) (12). A cutoff point of ≥ 11 of diagnosis of PE was used for the PEDT (10,13).

To exclude unreliable answers, we discarded incomplete answers and those with a response time of less than 20% of the average response time. Answers from responders who reported that they did not participate in sexual activity more than once per month during the past 6 months were also excluded. Responders were classified into 3 subgroups. Men who actually use CAM were allocated to group A (actual CAM user), those who desire to use CAM but do not actually use CAM to group P (potential CAM user) and those who neither use nor desire to use CAM to group N (CAM non-user) (figure 1).

All statistical analyses were performed using SPSS® version 12.0 (SPSS, Inc., Chicago). The chi-square test was used to compare categorical data, and the independent t-test was used to compare numerical data. Binary logistic regression analysis was used to calculate the odds ratios (OR) of risk factors. All hypotheses were evaluated in a two-sided manner, and p-values < 0.05 were considered significant. Values are presented as mean \pm standard deviation.

The study protocol was reviewed and approved by the Institutional Review Board at the Seoul National University Boramae Hospital.

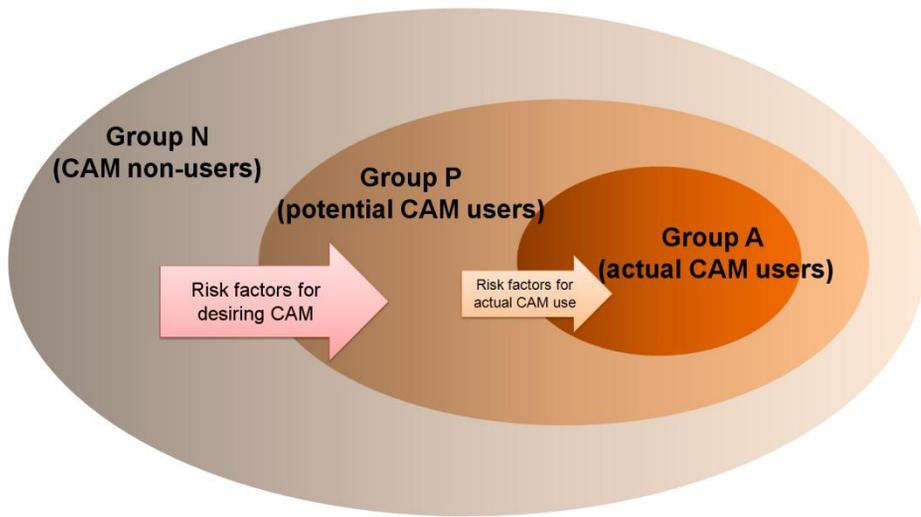


Figure 1. Hypothetic model for CAM use and risk factors for migrating groups

RESULTS

Of the 30,000 men who received the e-mail invitation, 1,206 visited the web portal. After excluding incomplete responses or those that reported insufficient sexual activity (n=573) and those with short response times (n=190), a total of 443 men with mean age 39.2 ± 10.2 years were included in the analysis (table 1). There were 112 men (25.3%) in their 20s, 116 (26.2%) in their 30s, 114 (25.7%) in their 40s, and 101 (22.8%) in their 50s. There were 219 (49.4%) smokers, and 85 (19.2%) did not drink at all. In terms of medical history, 35.9% had ongoing medical illnesses, and 13.5% were taking at least one medication.

Of the 443 respondents, 49 (11.1%) had previously used or were currently using CAM (Group A). Among these men, only 3 (6.1%) had taken a conventional erection drug like a phosphodiesterase type 5 inhibitor. The most commonly used modes of CAM were dietary supplements other than supplementary vitamins (33.7%), supplementary vitamins (22.1%), traditional Chinese medicine (15.8%) and mechanical devices (14%) (figure 2). Of the 49 CAM users, 28 (57.1%) men used more than 1 type of CAM (2-8 types). Mean annual out-of-pocket spending on CAM per individual was 466 ± 349 thousand Won (423.6 ± 317.3 USD). Mean overall satisfaction with the used CAM was 5.55 ± 2.42 points. The most common reason for satisfaction was that CAM had an “acceptable effect” (30.6%), and the most common reason for dissatisfaction was that CAM had “no effect” (38.8%). Of the 49 CAM users, 38 (77.6%) men wanted to re-use or continue using CAM. Of the men who did not use CAM, 192 men (43.3%) desired to use CAM to increase sexual function (Group P). There were 202 (45.6%) men who neither used nor desired to use CAM (Group N). There was no significant differences of satisfaction

points among age groups, although CAM use rate was significantly higher in men aged 50 or over than men younger than 50.

Significant differences in characteristics were found across the groups, as shown in table 2. Group N had a relatively low mean age. A greater proportion of group A were smokers, and a greater proportion of group A and P were drinkers. Group A had a greater proportion of men with “strongly positive” attitude toward sexual activity. Furthermore, a greater proportion of men in group A than in group P regarded sex “a very important part of life”. Groups A and P had higher proportions of men with self-reported erectile dysfunction than group N, but no definite intergroup differences were shown by IIEF-5. Self-reported PE was more prevalent in groups A and P, in accordance with PEDT questionnaire results. Health-related quality of life, measured by SF-36, showed an increasing trend from groups A to N to P, especially with respect to physical function (PF), social function (SF), and role emotion (RE).

To evaluate the influence of subject characteristics, attitude for sexual activity, sexual function and HRQOL on actual CAM use and desire to use CAM, these parameters were included in the univariate analysis. Assuming actual CAM users (group A) desired CAM use, groups A and P were combined and compared with group N in order to find out risk factors for desiring CAM. In addition, to evaluate risk factors for actual CAM use among men who desire to use CAM, group A was compared with group P. Subject ages were divided by decade, and those in their 20s and 30s were regarded as one age group as they did not show differences in terms of rate of CAM use and characteristics. Univariate analysis indicated that age, drinking, medical illness, medication, positive attitude toward sexual activity,

importance of sexual activity, self-reported ED, ED from IIEF-5, self-reported PE, PE from PEDT, PF and SF points on SF-36 were possible risk factors for desiring to use CAM. Univariate analysis also indicated that smoking, medication, positive attitude toward sexual activity, importance of sexual activity and RE points on SF-36 were potential risk factors for actual CAM use. Meanwhile, BMI, marital status, economic status, level of education, exercise, intercourse frequency and points of domain other than PF, SF, or RE on SF-36 did not have any influence on either the actual use or the desire to use CAM.

Possible risk factors confirmed in the univariate analysis were selected for the multivariate regression model to determine the influence on actual CAM use and desire to use CAM (Table 3, 4). According to multivariate analysis, independent risk factors for desiring CAM were alcohol consumption (OR=2.24, 95% C.I 1.28-3.91), regarding sex a very important part of life (OR=2.16, 95% C.I. 1.41-4.09), self-reported ED (OR=5.08, 95% C.I. 1.60-16.1), and self-reported PE (OR=3.34 95% C.I. 1.65-6.76) (Table 3). Independent risk factors for actual CAM use were smoking (OR=2.49 95% C.I. 1.11-5.61), strongly positive attitude toward sexual activity (OR=3.77 95% C.I. 1.42-9.99), self-reported non-PE (OR=0.22 95% C.I. 0.06-0.73) and low RE points on SF-36 (OR=0.22 95% C.I. 0.06-0.73). However, age, medication, ED from IIEF-5 and PE from PEDT were not significant risk factors according to either analysis (Table 4).

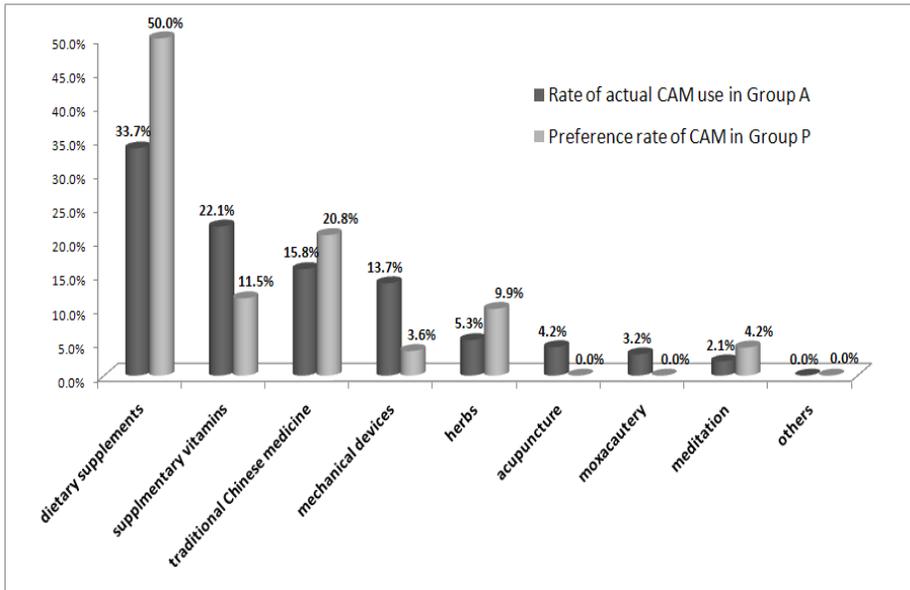


Figure 2. Rate of actual CAM use in group A and preference rate of CAM in group P

	N	%
Age		
20-29 years	112	25.3%
30-39 years	116	26.2%
40-49 years	114	25.7%
50-59 years	101	22.8%
Obesity (BMI[*], Asian scale)		
Normal (BMI<23)	191	43.1%
Overweight (23≤BMI<25)	123	27.8%
Obese (BMI≥25)	129	29.1%
Marital status		
Married	316	71.3%
Unmarried	127	28.7%
Economic status (income)		
Relatively low (0~199 [†])	73	16.5%
Relatively middle (200~499 [†])	270	60.9%
Relatively high (≥500 [†])	100	22.6%
Education (highest level of schooling)		
High school or lower	74	16.7%
University or higher	369	83.3%
Smoking		
Non-smoker	224	50.6%
Smoker	219	49.4%

Drinking alcohol		
No	85	19.2%
Yes	358	80.8%
Exercise (times per week)		
< 1 time	194	43.8%
≥ 1 time	249	56.2%
Past medical history		
No illness	284	64.1%
One or more illnesses	159	35.9%
Medication		
No medication	383	86.5%
One or more medication(s)	60	13.5%

Table 1. Demographic characteristics of responders

*BMI; body mass index, †Unit; ten thousand Won

	Group A (n=49)	Group P (n=192)	Group N (n=202)
Demographic factors			
Age (years)	42.8±11.2	40.4±10.0	37.4±9.8 ^{*†}
BMI	23.1±2.7	23.6±2.4	24.0±2.7
Smoking			
Non-smoker (n)	13(26.5%)	105(54.7%) [*]	106(52.5%) [*]
Smoker (n)	36(73.5%)	87(45.3%) [*]	96(47.5%) [*]
Drinking alcohol			
Not at all (n)	6(12.2%)	31(16.1%)	48(23.8%)
Yes (n)	43(87.8%)	161(83.9%)	154(76.2%)
Past medical history			
No illness (n)	26(53.1%)	114(59.4%)	144(71.3%) ^{*†}
One or more (n)	23(46.9%)	78(40.6%)	58(28.7%) ^{*†}
Medication			
No medication (n)	34(69.4%)	163(84.9%) [*]	186(92.1%) ^{*†}
One or more (n)	15(30.6%)	29(15.1%) [*]	16(7.9%) ^{*†}
Sexual activity and attitude			
toward sexual activity			
Intercourse frequency (times/month)	7.2±6.1	5.5±4.8	5.3±3.9 [*]
Positive thinking towards sexual activity			
Less than strongly positive(n)	21(42.9%)	135(70.3%) [*]	154(76.2%) [*]
Strongly positive (n)	28(57.1%)	57(29.7%) [*]	48(23.8%) [*]

Importance of sexual activity			
Less than very important (n)	27(55.1%)	138(71.9%)*	167(82.7%)*†
Very important (n)	22(44.9%)	54(28.1%)*	35(17.3%)*†
Erectile dysfunction			
Self-reported ED			
No (n)	38(77.6%)	161(83.9%)	198(98.0%)*†
Yes (n)	11(22.4%)	31(16.1%)	4(2.0%)*†
ED from IIEF-5			
Normal (≥ 22) (n)	20(40.8%)	80(41.7%)	107(53.0%)†
ED (< 22) (n)	29(59.2%)	112(58.3%)	95(47.0%)†
Ejaculatory disorder			
Self-reported PE			
No (n)	38(77.65)	127(66.1%)	187(92.6%)*†
Yes (n)	11(22.4%)	65(33.9%)	15(7.4%)*†
PE from PEDT (N,%)			
No PE	38(77.6%)	149(77.6%)	191(94.6%)*†
PE (≥ 11)	11(22.4%)	43(22.4%)	11(5.4%)*†
Health-related quality of life (SF-36) (points)			
Physical function	82.9 \pm 20.2	87.1 \pm 16.5	90.3 \pm 15.8)*†
Role physical	48.5 \pm 45.8	58.3 \pm 42.8	66.2 \pm 44.3)*
Role emotion	40.1 \pm 45.6	60.6 \pm 44.5)*	63.9 \pm 45.9)*

Vitality	56.4±13.7	52.6±14.1	55.8±13.1 [†]
Mental health	61.1±14.0	57.5±13.6	58.5±13.1
Social function	68.6±17.1	75.3±20.3 [*]	79.3±19.7 ^{**†}
Body pain	81.3±16.3	79.2±20.9	83.5±20.2 [†]
General health	56.5±20.7	55.2±16.7	59.9±15.9 [†]
Physical component score	67.3±19.7	70.0±19.4	75.0±20.1 ^{**†}
Mental component score	56.6±16.6	61.5±19.5	64.4±19.0 [*]

Table 2. Difference in characteristics among groups A, N and P

* denotes statistically significant difference ($p < 0.05$) comparing with group A

† denotes statistically significant difference ($p < 0.05$) comparing with group P

group A; actual CAM user, group P; potential CAM user, group N; CAM non-user,

	Adjusted OR	95% CI
Age (years)		
< 40	1.0 (ref)	
≥ 40 and < 50	1.366	0.818-2.280
≥50	1.302	0.718-2.363
Smoking		
Non-smoker	1.0 (ref)	
Smoker	1.045	0.679-1.608
Drinking alcohol		
Not at all	1.0 (ref)	
Yes	2.241*	1.284-3.913
Past medical history		
No illness	1.0 (ref)	
One or more illnesses	1.140	0.690-1.884
Medication		
No medication	1.0 (ref)	
One or more medication(s)	1.834	0.875-3.842
Positive thinking towards sexual activity		
Less than strongly positive	1.0 (ref)	
Strongly positive	1.300	0.712-2.372
Importance of sexual activity		
Less than very important (n)	1.0 (ref)	
Very important (n)	2.159*	1.141-4.089

Self-reported ED		
No	1.0 (ref)	
Yes	5.083*	1.601-16.133
ED from IIEF-5		
Normal (≥ 22)	1.0 (ref)	
Mild to severe ED (< 22)	1.005	0.608-1.661
Self-reported PE		
No	1.0 (ref)	
Yes	3.339*	1.649-6.759
PE from PEDT		
No PE or probable PE (< 11)	1.0 (ref)	
PE (≥ 11)	2.036	0.876-4.732
Health-related quality of life (SF-36)		
Physical function (PF)	0.997	0.983-1.011
Role emotion (RE)	1.004	0.998-1.011
Social function (SF)	0.985	0.970-1.000

Table 3. Risk factors for desiring to use CAM

* denotes statistically significant difference ($p < 0.05$)

	Adjusted OR	95% CI
Age (years)		
< 40	1.0 (ref)	
≥ 40 and < 50	2.140	0.809-5.658
≥50	2.512	0.909-6.942
Smoking		
Non-smoker	1.0 (ref)	
Smoker	2.489*	1.105-5.605
Drinking alcohol		
Not at all	1.0 (ref)	
Yes	0.914	0.298-2.803
Past medical history		
No illness	1.0 (ref)	
One or more illnesses	1.405	0.559-3.530
Medication		
No medication	1.0 (ref)	
One or more medication(s)	1.856	0.648-5.318
Positive thinking towards sexual activity		
Less than strongly positive	1.0 (ref)	
Strongly positive	3.765*	1.419-9.984
Importance of sexual activity		
Less than very important (n)	1.0 (ref)	
Very important (n)	1.246	0.476-3.260

Self-reported ED		
No	1.0 (ref)	
Yes	0.712	0.227-2.227
ED from IIEF-5		
Normal (≥ 22)	1.0 (ref)	
Mild to severe ED (< 22)	0.821	0.328-2.054
Self-reported PE		
No	1.0 (ref)	
Yes	0.216*	0.064-0.727
PE from PEDT		
No PE or probable PE (< 11)	1.0 (ref)	
PE (≥ 11)	1.901	0.571-6.332
Health-related quality of life (SF-36)		
Physical function (PF]	1.004	0.981-1.028
Role emotion (RE]	0.985*	0.973-0.996
Social function (SF]	0.994	0.970-1.019

Table 4. Risk factors for actual CAM use

* denotes statistically significant difference ($p < 0.05$)

DISCUSSION

In the present study, we studied CAM use for improving sexual function in young Korean males. More than 10% of men used CAM for the improvement of sexual function. Moreover, about half of the surveyed men had the desire to use CAM. Compared to CAM non-users, men who use or hope to use CAM described more problems in their sexual function, such as ED or PE, and showed more positive attitudes toward sexual function. In addition, smoking, drinking alcohol and emotional problems were also possible risk factors for using or desiring CAM.

This study was based on an Internet survey, which has a number of advantages. First, it provides an easier means of assessing the general population. Second, this type of survey secures a private environment for answering questions about sexual issues, often a sensitive topic. In addition, Korea has one of the world's most comprehensive Internet networks, which enables the population to be easily accessed, and as a result, Internet surveys are commonly conducted in the social sciences in Korea. Furthermore, the utility of Internet surveys as a means of studying sexual issues like female sexual dysfunction and PE have already been verified (8, 14, 15).

The prevalence of CAM use in general has been reported to depend on factors such as definition of CAM used, cultural differences, and characteristics of study populations. For example, a recent systemic review showed that 17-72.8% of diabetes patients used CAM (16), and a study on urological malignancies in Korea reported that 39.2% patients had used at least one type of CAM (17). However,

there has only been one previous systematic study on the prevalence of using alternative treatment for erectile difficulties, and it was found that 9.1% of Asian men used alternative treatments for erectile difficulties (18). Similarly, in the present study, the prevalence of CAM use for improving sexual function was found to be 11.1% in young Korean men. It is noteworthy, however, that the sum of actual CAM users and those considering CAM use (Group A + Group P) represented more than half of our cohort (55.4%).

We propose a hypothetical model of factors that lead to use CAM among men (figure 1). Our model is based on the assumption that men become desirous of CAM when exposed to some risk factor and that actual CAM use occurs among these men. We also assumed that men with no desire to use CAM will probably not do so and that not all those considering CAM will actually use CAM. As a result, we assumed that there must exist additional risk factors that lead such men to actually use CAM. Most variables that affect CAM use either increased or decreased linearly from group A to B to C, in accordance with the assumptions made to construct the model in Figure 1.

Multivariate analysis showed that drinking and smoking were independent risk factors for CAM use, but age was not found to be an independent risk factor, despite the significantly lower mean age in group N. Contrary to our findings, a previous cross-cultural comparison of visitors to CAM practitioners in the United States and Norway reported that smoking daily reduced the odds of seeing a CAM practitioner (19). However, in this study, CAM use was not restricted to sexual function and included general health and other illnesses. According to the study, weekly alcohol consumption significantly increased the risk of seeing a CAM

practitioner in the US. Smoking and drinking are also potential independent risk factors for ED (20, 21). According to results of the Fangchenggang Area Male Health and Examination Survey (FAMHES), the risk of ED is significantly higher in smokers than in non-smokers (OR=1.23; 95%CI=1.03-1.49), and there is a higher association between smoking and ED risk in men that regularly consume alcohol (OR=1.32, 95%CI=1.01-1.74) (22). In Denmark, a correlation between unhealthy lifestyles and sexual dysfunction has been reported, and high alcohol consumption (>21 alcoholic beverages/week) and tobacco smoking were both found to be significantly and positively associated with ED and PE (23).

In the present study, multivariate analysis showed that self-reported ED and self-reported PE were risk factors for CAM use. In addition, mild to severe ED from IIEF-5 and PE from PEDT were found to be significant risk factors according to univariate analysis, although these factors were not significant independent factors in multivariate analysis. The IIEF-5 is useful for detecting the presence and severity of ED (12), whereas PEDT is effective for detecting the presence of PE (10). In the present study, self-reported ED and PE were found to be well-correlated with questionnaire findings. However, in terms of predicting CAM use, how an individual thinks of himself was found to be more important than an objective diagnosis of sexual dysfunction. In addition, in the present study, it was remarkable that only 5.4% of CAM non-users presented with PE from PEDT questionnaire. While the prevalence of PE in actual CAM users and potential CAM users was comparable to the global prevalence of PE (24-28), the lower prevalence of PE in CAM non-users may mean that most of the people with PE desire to use CAM or actually do use CAM.

Attitude toward sexual activity was also found to be a risk factor for CAM use. “Regarding sex a very important part of life” was found to be associated with the desire to use CAM, whereas a “strongly positive attitude toward sexual activity” was found to be correlated with actual CAM use. These associations are reasonable because greater interest in sexual activity is likely to increase the number of men who seek a method of improving sexual function. In the Global Study of Sexual Attitudes and Behaviors (GSSAB), 74.0% of Korean men were found to regard sex as an extremely or very important part of life, and the risk of a sexual problem was no higher in these men (29). Kim also reported that the majority (93%) of long-term sildenafil users have a positive attitude toward sex (30). Accordingly, it appears that the greater the interest in sexual activity, the more likely to seek a method of improving sexual function, regardless of sexual problems.

The RE domain of the SF-36 was developed in order to survey health status in the United States and to assess everyday activity limitations caused by emotional problems (31). In the present study, although PF and SF scores were significantly different across groups, RE score was found to be the only significant independent factor that predicted actual CAM use. Other studies have also found that sexual dysfunction is typically influenced by various factors, including emotional difficulties (32). Psychologists have reported that neither psychotherapy alone nor medical intervention alone is sufficient for a lasting resolution of sexual problems in many cases (33). Therefore, since RE was found to be a significant predictor of CAM use, CAM users may be in need of emotional support.

This study has some limitations. First, since men above the age of 60 were not included in this study, our findings cannot represent CAM use in the general

population. According to the Korean Statistical Information Service (KOSIS) (34), the prevalence of Internet use in Korean males is 99.8%, 99.3%, 91.8% and 67.3% for men in their 20s, 30s, 40s and 50s, respectively. Because the prevalence of Internet use in men over 60 years old was only 30.5%, we excluded men in their 60s due to the low representativeness. According to our findings, however, the use rate of CAM increased with advancing age. Therefore, use rate of CAM in older men is expected to be higher than in the younger population. Although multivariate analysis showed that age was not a significant independent risk factor, the absence of information on older men is a major limitation of this study. Second, as this study was based on an Internet survey, there was an inevitable selection bias. The proportion of men whose highest level of education was university or over in this study was 83.3 %, which was higher than the estimated 65% according to Korean Statistics for Korean men aged 20-59 (34). The higher educational level of the subjects might be due to the fact that they were Internet users. Although there was no difference depending on education level with respect to CAM use, we cannot completely exclude the chance of bias. Third, as this survey was a cross-sectional study, it cannot prove a cause-and-effect relationship. We investigated different variables between groups and assumed the variables as risk factors. The fact that most risk factors increased or decreased linearly when we arranged group A, P and N in order supports this assumption. Still, however, we cannot exclude the possibility that the difference may be due to CAM use. For example, self-reported PE was described less frequently in actual CAM users than in potential CAM users, and this finding might be due to the effects of CAM. To resolve these problems, a larger case-control study is warranted.

Accurate identification of men who desire or actually use CAM is important because it can affect patient evaluations, treatment types, and decisions for treatment timing. As a result, when we treat patients with sexual problems, it should be kept in mind that a number of men are at risk of yielding to the temptation of using CAM and that various modes of CAM are in use for improving sexual function.

The prevalence of CAM use for improving sexual function was found to be around 10% among Korean men (between 20 and 60 years old), and about half of those who have never used CAM desired to use CAM. Based on the results obtained, we propose a model to explain the factors that lead men to use CAM to improve sexual function. Smoking, drinking, self-reported ED, self-reported PE, attitude toward sexual activity, and emotional problems play roles in making decisions regarding CAM use. Hence, it may be important to identify those who are likely to become CAM users, provide conventional sexual consultation, and pursue treatment as necessary.

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국문 초록

서론: 대체보완요법의 사용은 전세계적으로 늘고 있는 추세이다. 또한 일반인들의 성기능에 향상에 대한 관심도 증가하고 있다. 하지만 대체보완요법의 사용에 관한 많은 연구가 시행되었지만 성기능 향상을 위한 대체보완요법에 대한 연구는 거의 이루어져 있지 않다. 본 연구에서는 성기능 향상을 위해 사용하는 대체보완요법에 대한 역학적 조사와 대체보완요법을 사용하게 하는 요인들에 대한 모델을 제시하고자 한다.

방법: 한국의 젊은 남성을 대표할 수 있는 20 세에서 59 세의 인터넷 연구집단에게 메일을 보내어 인터넷 설문조사를 시행하였다. 설문 조사항목은 인구통계학적 자료, 성생활에 대한 태도, 성기능 조사 설문지, 성기능향상을 위한 대체보완요법의 사용 또는 사용을 희망하는지에 대한 내용을 포함하였다. 설문에 참가한 사람은 세 집단으로 분류하였다. 첫 번째 집단은 성기능향상을 위하여 대체보완요법 사용을 해보았거나 하고 있는 집단이며 두 번째 집단은 대체보완요법 사용을 희망하지만 실제로 사용한적이 없는 집단이고 세 번째 집단은 대체보완요법 사용을 희망하지도 않으며 실제로 사용한 적이 없는 집단이다.

결과 : 설문에 참가하여 최종 대상에 포함된 443 명의 평균나이는 39.2 ± 10.2 세 이었다. 이 중 49 (11.1%) 명이 성기능 향상을 위하여 대체보완요법을 사용해보거나 사용하고 있었다. 가장 흔히 사용되고 있는 대체보완요법은 대체음식이었고, 대체보완요법사용에 대한 평균 만족도는 $55.5 \pm 24.2\%$ 였다. 대체보완요법을 사용해 본 적은 없지만 희망하는 대상자는 192 (43.3%)명 이었다. 다변량 분석에서 성기능향상을 위하여 대체보완요법 희망을 예측할 수 있는 독립적 인자는 음주 (OR=2.24, 95%CI=1.28-3.91), 성생활을 매우 중요하게 생각함 (OR=2.16; 95%CI=1.41-4.09), 자가보고 발기부전 (OR=5.08; 95%CI=1.60-16.1) 및 자가보고 조루 (OR=3.34; 95%CI=1.65-6.76) 였다. 실제 성기능향상을 위하여 대체보완요법을 사용하게 되는 독립적 위험인자는 흡연 (OR=2.49; 95%CI=1.11-5.61), 성생활에 대한 매우 긍정적인 태도 (OR=3.77; 95%CI=1.42-9.99), 건강관련 삶의 질 평가 설문지에서 role emotion 항목의 낮은 점수 (OR=0.98; 95%CI=0.97-0.99) 및 자가보고 조루가 아님 (OR=0.22; 95%CI=0.06-0.73) 이었다.

결론: 흡연, 음주, 자가보고 발기부전 및 조루, 성생활에 대한 태도, 일상생활에서의 정서적 문제점 등이 성기능 향상을 위한 대체보완요법의 사용에 역할을 하는 것으로 판단된다.

* 본 내용은 the Journal of Sexual Medicine (Choi WS, Song SH, Son H. Epidemiological Study of Complementary and Alternative Medicine (CAM) Use for the Improvement of Sexual Function in Young Korean Men: The Korean Internet Sexuality Survey (KISS), Part II. J Sex Med. 2012 May 22; DOI: 10.1111/j.1743-6109.2012.02790.x.)에 출판 완료된 내용임

주요어 : 대체 의학, 성기능, 역학

학 번 : 2007-21984