

Validation of the Korean Integrative Medicine Attitude Questionnaire (IMAQ)

Original
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Background: To develop a Korean version of the Integrative Medicine Attitude Questionnaire (IMAQ) in order to evaluate physician attitudes toward integrative medicine/complementary and alternative medicine (CAM).

Methods: We developed a Korean IMAQ through careful translation of the 28-item questionnaire developed by Schmidt et al. A web-based survey was sent via email to 118 primary care physicians in Korea. The complete response rate was 52.5%. The questionnaire's reliability and validity were verified using Cronbach's α , factor analysis, and discriminant analysis.

Results: Although the Korean IMAQ exhibited excellent internal consistency, its validity was insufficient. Our results suggest that Western and Korean physicians may have different understandings of CAM and the concept of holism, as factor analysis showed that incorrectly classified items were mainly part of the holism conceptual domain. Furthermore, the sum of the items within the holism conceptual domain was not significantly different for physicians who had previously received CAM education.

Conclusions: This study developed and tested the first Korean IMAQ. We found that this version of the questionnaire lacks sufficient validity and requires further modification.

Keywords: Integrative Medicine; Complementary Medicine; Holism; Medical Education; Attitude

INTRODUCTION

Complementary and alternative medicine (CAM) has long been prevalent worldwide among adult patients,^{1,2)} the general public,³⁾

children,³⁾ and the elderly,⁴⁾ a trend that holds true for Korea. It has been reported that 78.4% of the general population⁵⁾ and 85.2% of cancer patients⁶⁾ use CAM. Approximately 70% of CAM users obtained information regarding specific therapies from family or friends, while only 4.2% consulted a physician.⁵⁾ Furthermore, it has been shown that cancer patients do not reveal their use of CAM therapies most often because the clinician fails to ask them.^{6,7)} These data highlight the importance of CAM acknowledgement by medical professionals, enquiry about its use, and assuming an active attitude toward its therapies.

People use knowledge to form their individual attitudes, which then tend to guide behavior.^{8,9)} Therefore, in order to bring about desirable changes in physician treatment of CAM, sufficient education consisting of an accurate, evidence-based information is essential. Investigation of attitudes of Korean physicians towards CAM is necessary to review current CAM and also establish new curricula in both undergraduate medical education and continuing

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education program. To address the CAM communication gap between doctors and patients, reliable and validated questionnaires are an important first step for assessing physician attitudes.

Schneider et al.¹⁰⁾ developed the original 29-item Integrative Medicine Attitude Questionnaire (IMAQ) with a two-domain structure in 2003. Schmidt et al.¹¹⁾ modified this questionnaire and revalidated their new 28-item IMAQ with a three-domain structure that includes attitudes toward holism (11 items), the effectiveness of integrative medicine treatment (11 items), attitudes toward introspection, and also the doctor-patient relationship (6 items).

However, there are considerable differences in the health care systems and medical environments between Western countries and Korea. The IMAQ was developed by and for Western physicians and therefore must be evaluated in Korean physicians. The aim of this study was to develop a Korean version of the IMAQ through careful translation of the new 28-item English-language questionnaire.

METHODS

1. Participants

We recruited 118 Western-trained Korean primary care physicians from a continuing medical education program, irrespective of their specialty in Korea. We sent study information, a consent form, and questionnaires via email. The web-based survey was administered during four weeks in July 2008. Of the 118 physicians enrolled, the complete response rate was 52.5%.

2. Instruments

An expert panel consisting of five family physicians and an internist was assembled to develop the Korean IMAQ. The IMAQ was carefully translated into Korean, with several translations suggested for each item. The Korean IMAQ was then reverse-translated back into English by a bilingual translator to ensure that it accurately reflected the intents of the questions (Supplementary). In the case of medical terms, English equivalents were given in parentheses after Korean words. The Korean IMAQ did not include any footnotes regarding the various CAM modalities.

The Korean version was comprised of 28 items and employed a seven-point Likert scale that ranged from 1-‘absolutely disagree’ to 7-‘absolutely agree.’ The neutral answer, ‘don’t know,’ was coded separately and as 4 on the seven-point Likert scale. The sum of the

item scores represented the total Korean IMAQ score; a higher score indicated a more positive attitude toward CAM. Ten of the 28 items were reverse-coded (items 1, 2, 4, 8, 10, 13, 17, 18, 25, and 26). Use of the original and modified IMAQs were permitted by the appropriate authors. This study was approved by the institutional review board of the Chung-Ang University Hospital.

3. Statistical Analysis

Reliability and validity of the Korean IMAQ were verified using Cronbach’s α , factor analysis, and discriminant analysis. To evaluate validity, factor analysis was performed using the principal component extraction method with Schmidt et al.’s three-factor structure and a varimax rotated solution.¹¹⁾ Factor 1 was attitude toward holism (1, 2, 5, 6, 7, 9, 11, 15, 17, 19, and 24), factor 2 was attitude toward the effectiveness of integrative medicine treatment (3, 4, 8, 10, 12, 13, 16, 18, 25, 26, and 27), and factor 3 was attitudes toward introspection and the doctor-patient relationship (14, 20, 21, 22, 23, and 28). Discriminant analysis was performed according to the presence or absence of previous CAM education. All statistics were performed using the SPSS ver. 15.0 (SPSS, Chicago, IL, USA).

RESULTS

1. Baseline Characteristics of the Subjects

The majority of participants were men in their 30s or 40s (79.0%). Over 60% of physicians had received education about CAM (67.7%), mostly in continuing education programs offered by individual medical societies (85.7%). The physicians lived mostly in Seoul or other metropolitan areas (72.4%), and the majority practiced family medicine (66.1%) (Table 1).

2. Attitudes toward Integrative Medicine

The mean score of the Korean IMAQ was 130.31 ± 16.19 . Individual mean item scores are shown in Table 2. Item 2 (*The doctor’s role should be primarily to promote health rather than to treat disease*) had the lowest mean score, and item 24 (*Counseling on nutrition should be a major role of the doctor toward the prevention of chronic disease*) had the highest.

3. Reliability and Validity Testing

Cronbach’s α for these results was 0.85, indicating adequate

Table 1. Demographic information of the study subjects.

Variable	No. (%)
Age (y)	
20–29	11 (17.7)
30–39	26 (41.9)
40–49	23 (37.1)
50–59	2 (3.3)
Gender	
Male	51 (83.0)
Female	11 (17.0)
Education	
University graduate	43 (69.4)
Postgraduate school	19 (30.6)
Previous CAM education	
No	20 (32.3)
Yes	42 (67.7)
Undergraduate school	6 (14.3)
Continuing medical education program	36 (85.7)
Willingness to study CAM	
No	5 (8.1)
Yes	40 (64.5)
Don't know	17 (27.4)

CAM: complementary and alternative medicine.

internal consistency. Factor analysis was performed on all 28 items to confirm the questionnaire's validity, which explained 44.82% of the variance. Factor loadings were -0.516 to 0.803 , and 12 of the 28 items (42.8%) were erroneously classified (Table 3).

On further discriminant analysis of the Korean IMAQ, we found significant differences between physician attitudes toward CAM depending on their previous level of CAM education in most domains, such as the domain of 'attitude toward the effectiveness' and 'attitudes toward introspection and the doctor-patient relationship,' or total score of IMAQ. However, the sum of the items within the holism conceptual domain was not significantly different for physicians who had previously received CAM education ($P = 0.06$) (Table 4).

Table 2. Individual item scores in ascending order.

Item	Score
2	3.15 ± 1.28
4	3.65 ± 1.68
6	3.74 ± 1.45
1	3.77 ± 1.49
27	3.77 ± 1.11
25	3.82 ± 1.37
11	3.95 ± 1.38
18	4.00 ± 1.22
8	4.18 ± 1.43
5	4.26 ± 1.27
17	4.29 ± 1.71
26	4.48 ± 1.18
9	4.58 ± 1.74
13	4.58 ± 0.98
7	4.66 ± 1.10
10	4.71 ± 1.37
16	4.92 ± 1.16
22	5.06 ± 1.37
3	5.08 ± 1.50
23	5.16 ± 1.16
12	5.27 ± 1.16
19	5.39 ± 1.15
21	5.45 ± 1.14
28	5.60 ± 1.19
20	5.63 ± 1.20
15	5.65 ± 1.10
14	5.66 ± 1.28
24	5.84 ± 1.24

Scores are shown as mean \pm standard deviation.

DISCUSSION

We translated the new 28-item IMAQ from the United States into Korean and tested the questionnaire's reliability and validity for examining the attitudes toward CAM of Western-trained Korean medical doctors. Results show adequate internal consistency of the

Table 3. Factor analysis of all 28 questionnaire items.

Factor	Item	Factor loading	Explained variance (%)
1	6	0.601	7.03
	12*	0.600	
	26*	0.572	
	3*	0.546	
	7	0.523	
	2	-0.516	
	10*	0.511	
	8*	0.435	
	5	0.352	
	9	0.313	
	2	4	
18		0.640	
17*		0.604	
25		0.595	
27		0.577	
1*		0.529	
13		0.522	
3	21	0.803	25.48
	24*	0.780	
	28	0.767	
	15*	0.726	
	14	0.720	
	20	0.688	
	19*	0.625	
	23	0.564	
	22	0.498	
16*	0.484		

The extraction method was principal component analysis with three-factors. The rotation method was varimax with Kaiser normalization. Rotation converged in six iterations.

*Erroneously classified 12 items into three-factors.

Korean IMAQ and insufficient validity.

The vast majority of English-language questionnaires require significant modification for successful use in Korea.¹²⁾ This may be due to historical and cultural differences between Western countries

Table 4. Discriminant analysis according to the level of previous CAM education.

Factor	CAM education		P-value
	Yes (n = 42)	No (n = 20)	
1. Attitude toward holism	50.29 ± 6.18	47.15 ± 5.81	0.06
2. Attitude toward the effectiveness of CAM treatments	50.26 ± 8.42	44.70 ± 4.55	<0.01
3. Attitudes toward introspection and the doctor-patient relationship	34.43 ± 4.09	28.65 ± 5.79	<0.01
Total	134.98 ± 15.71	120.5 ± 12.63	<0.01

Scores are shown as mean ± standard deviation. CAM: complementary and alternative medicine.

and Korea, making it difficult for English-language questionnaires to reflect and analyze certain essential Korean characteristics.

Unfortunately, we found that this Korean IMAQ is not applicable to Western-trained Korean medical doctors, possibly partially due to different understandings of holism. Not only were the item scores of factor 1 relatively low, but erroneously classified items of factor analysis were also mainly included in factor 1. In fact, after excluding IMAQ factor 1 item, only two items were incorrectly grouped. Furthermore, only the sum of the items for ‘the attitude toward holism’ did not differ significantly based on level of previous CAM education. There were no other differences based on level of previous CAM education observed in seven of 11 holism related item (factor 1) scores.

The concept of holism is of great importance in the practice of medicine and regards the patient as a whole person, including mind, body, and the spirit.¹³⁾ A holistic approach does not focus on therapy but on healing the underlying condition. In addition, holistic methods do not necessarily aim to treat a diagnosed disease; it focuses on individualized therapy according to patient’s vulnerabilities, personal history, occupation, environment, diet, lifestyle, and other individual factors.¹⁴⁾

Most of the Korean doctors surveyed had gained some measure of experience or skills related to specific CAM therapies, separately from education in terms of integrative medicine, through the continuing education programs of individual medical societies. Of the 80% of subjects who had received previous CAM education, only

14.3% had training in medical school. These data suggest that few doctors receive education during their training involving philosophy of integrative medicine or CAM modalities, including the concept of holism.

Three items related to acupuncture and herbal medicine were below the median score: item 4 (*Doctors should advise against the use of well-established traditional herbs [botanical medicine] until the herbs have undergone rigorous testing such as is required for any pharmaceutical drug*), item 25 (*Doctors should avoid recommending herbs [botanicals] based on observation of long-term use in other cultures and systems of healing, because such evidence is not based on large randomized controlled trials*), and item 8 (*Acupuncture has been found to be effective for chemotherapy-related nausea and vomiting. The system relies on unknown mechanisms [meridians]. It is irresponsible for doctors to recommend acupuncture for conditions such as chemotherapy-related nausea and vomiting*). Interestingly, the mean score on the acupuncture-related item 8 of Korean physicians (4.18 ± 1.43) was higher than that of US physicians¹⁰⁾ (1.85 ± 1.37), indicating more positive attitudes toward acupuncture.

The mean scores of the following items were particularly high: item 3 (*Patients whose doctors know about complementary and alternative medicine, in addition to conventional medicine, benefit more than those whose doctors are only familiar with conventional medicine*), item 23 (*Doctors should be prepared to answer patients' questions regarding the safety, efficacy, and proper usage of commonly used herbs [botanicals]*), and item 12 (*Doctors who know about complementary and alternative practices [i.e., Traditional Chinese Medicine] in addition to conventional medicine, generate improved patient satisfaction*) (5.08 ± 1.50 , 5.16 ± 1.16 , 5.27 ± 1.16 , respectively). These high mean scores suggest that Korean physicians value knowledge about CAM modalities. Furthermore, the physicians surveyed expressed willingness to learn more about CAM.

In contrast to the Western health care system, traditional Korean oriental medicine (KOM) is practiced alongside conventional medicine in Korea. Thus, Western-trained Korean physicians tend to use an organ- and therapy-based approach; contrast to the holistic approach in KOM.¹⁵⁾ Chung et al.¹⁶⁾ reported that the IMAQ would be inappropriate for use in Hong Kong, which has similar cultural trends to those of Korea. In order to develop an accurate Korean version of the IMAQ, a panel of CAM experts will be established

to reanalyze the questionnaire's contents and to revise the question framework.

It is clear that significant knowledge of and reasonable attitudes toward CAM are indispensable among medical doctors, especially given the high rate of CAM usage in Korea. In order to assess this aspect, a proper evaluation tool of attitudes toward CAM is essential.

Although our study was limited by a small number subjects and a low response rate, the need for development of a valid and reliable Korean IMAQ is unequivocal. In conclusion, use of a Korean IMAQ translated from English without further modification is inappropriate. A new version tailored to the cultural characteristics of Korean physicians should be developed and tested for both reliability and validity.

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Supplementary 1. Modified integrative medicine attitude questionnaire.

1. A patient is completely cured once the underlying pathological processes are controlled.
2. The doctor's role should be primarily to promote health rather than to treat disease.
3. Patients whose doctors know about complementary and alternative medicine, in addition to conventional medicine, benefit more than those whose doctors are only familiar with conventional medicine.
4. Doctors should advise against the use of well-established traditional herbs (botanical medicine) until the herbs have undergone rigorous testing such as is required for any pharmaceutical drug.
5. It is appropriate for doctors to use intuition (gut feelings) as a major factor in determining appropriate therapies for patients.
6. The spiritual beliefs of doctors play an important role in patient care.
7. The spiritual beliefs of patients play an important role in their recovery.
8. Acupuncture has been found to be effective for chemotherapy-related nausea and vomiting. The system relies on unknown mechanism (meridians). It is irresponsible for doctors to recommend acupuncture for conditions such as chemotherapy-related nausea and vomiting.
9. End of life care should be valued as an opportunity for doctors to help patients heal.
10. It is not desirable for a doctor to take therapeutic advantage of the placebo effect.
11. Healing, in a sense of reaching a state of contentment, is not possible when the disease is incurable.
12. Doctors who know about complementary and alternative practices (i.e., Traditional Chinese Medicine) in addition to conventional medicine, generate improved patient satisfaction.
13. Therapeutic touch is not credible as a form of treatment.
14. Doctors who lead a balanced lifestyle (i.e., attending to their own health, social, family and spiritual needs, as well as interests beyond medicine) generate improved patient satisfaction.
15. In research, measuring quality of life is equally as important as measuring disease-specific outcomes.
16. Chiropractic or osteopathy is a valuable method for resolving a wide variety of musculoskeletal problems.
17. The doctor's goal should be primarily to treat disease, not to address the personal change and growth of the patient.
18. Massage therapy may makes patients "feel better" temporarily, but cannot lead to objective improvement in long-term outcomes for patients.
19. The innate self-healing capacity of patients often determines the outcome of illness regardless of treatment interventions.
20. A strong relationship between patients and their doctors is an extremely valuable therapeutic intervention that leads to improved outcomes.
21. Doctors who strive to come to terms with themselves generate improved patient satisfaction.
22. Instilling hope in patients whenever reasonable is a doctor's duty.
23. Doctors should be prepared to answer patients' questions regarding the safety, efficacy, and proper usage of commonly used herbs (botanicals).
24. Counseling on nutrition should be a major role of the doctor toward the prevention of chronic disease.
25. Doctors should avoid recommending herbs (botanicals) based on observation of long-term use in other cultures and systems of healing, because such evidence is not based on large randomized controlled trials.
26. Information obtained by research methods other than randomized controlled trials has little value to doctors.
27. It is ethical for doctors to recommend therapies to patients that involve the use of subtle energy fields in and around the body for medical purposes.
28. Doctors who strive to come to term with themselves provide better care than those who do not.

Supplementary 2. Reverse–translation of modified integrative medicine attitude questionnaire.

1. The patient is completely healed once the underlying pathological processes are controlled.
2. The role of the doctor is to promote health first, rather than to treat the disease.
3. It is more beneficial to receive care from doctors who are acquainted with both western and alternative medicine in addition to conventional medicine rather than those who only know just conventional medicine.
4. Doctors should advise patients not to take herbs (botanicals) until it passes strict standards such as the ones applied to established pharmaceutical drugs.
5. It is appropriate for doctors to use intuition as a major factor in deciding the right treatment for patients.
6. The spiritual belief of doctors play an important role in treating patients.
7. The spiritual belief of patients play an important role in their recovery.
8. Acupuncture is known to be effective in treating chemotherapy-related nausea and vomiting. However, there is nothing known about the mechanism. Thus it is irresponsible for doctors to recommend acupuncture to patients with chemotherapy-related nausea and vomiting.
9. The aim of end of life care should be valued as an opportunity for doctors to help patients heal.
10. It is not desirable for doctors to gain therapeutic benefit through placebo effect.
11. If healing means reaching a certain state of satisfaction, healing is impossible with incurable disease.
12. Patients are more satisfied with doctors who know about complementary alternative medicine (such as traditional Chinese medicine) as well as modern conventional medicine.
13. Therapeutic touch is an unreliable treatment method.
14. A doctor who leads a balanced life style improves patient satisfaction. A balanced life style means attending to one's health, and holding interests in social, family and spiritual needs as well as interests beyond medicine.
15. In research, it is equally important to measure the quality of life as well as the specific outcomes related to the disease.
16. Chiropractics or osteopathy are effective methods for resolving various musculoskeletal disorders.
17. The primary aim of doctors should be to treat the disease, rather than to deal with the individual patient's personal change and growth.
18. Massage therapy may give some temporary sense of relief to patients, but in the long run, cannot achieve any objective improvement in symptoms.
19. Self-healing powers of patients often decides the outcome of the treatment, regardless of the treatment method.
20. A close doctor-patient relationship is a very valuable therapeutic method for improving treatment effectiveness.
21. Doctors who try to come to terms with themselves generate improved patient satisfaction.
22. Always giving hope to patients in reasonable conditions, is a doctor's duty.
23. Doctors should be prepared to answer patients' questions about the safety, efficacy, and adequate usage of commonly used herbs (botanicals).
24. Consultation regarding nutrition should play a major part in the doctor's role toward preventing chronic disease.
25. Doctors must avoid recommending herbs (botanicals) based on observation of long-term use in different cultures and systems of healing. This is because it is not based on large randomized controlled trials.
26. Information that is derived from research methods other than randomized controlled trials hold little value to doctors.
27. It is ethical for doctors to recommend medical use of subtle energy fields in or around the human body for medical purposes.
28. Doctors who try to come to terms with themselves provide better care than those who do not.