Research in Dance and Physical Activity https://doi.org/10.26584/RDPA.2023.08.7.2.71
2023. Vol. 7, No. 2, 71-85

Validation of the Korean Version Health Consciousness Scale

Hyehyun Hong[1*]
Chung-Ang University, Republic of Korea, Professor
Yoon Jin Kim[2]
Chung-Ang University, Republic of Korea, Master Student

Abstract

As a wide range of health-related attitudes and behaviors is affected by health consciousness level, scholars have considered it a significant mental aspect of one's health. However, due to its conceptual complexity and ambiguity, its measures have been inconsistent across studies and often integrated with measuring overt health behaviors. In this regard, this study aimed to propose and validate the Korean version health consciousness (HC) scale, focusing on the psychological dimensions. The scale, which was originally developed and tested in the U.S. context, was translated into Korean and used to measure one's level of health consciousness among 525 college students in South Korea. Overall, the results of item analysis showed the potency of the scale as a statistically valid and reliable measure of health consciousness and provided significant correlations with attitudinal and behavioral variables regarding physical activity. Based on the results and discussion, we expect the scale to be useful in predicting many health-promoting behaviors and relevant attitudes and in helping to develop effective health promotion programs in the post-COVID-19 era.

Keywords: health consciousness, scale development, physical activity, health promotion

* Corresponding author
Email address: hhong@cau.ac.kr

Introduction

Several studies examined the concept of health consciousness (HC) as an important psychological trait (e.g., Dutta-Bergman, 2005, 2006; Dutta, 2007; Gould, 1998; 1990; Hong, 2009, 2011; Iversen & Kraft, 2006; Jayanti & Burns, 1998; Kalkbrenner & Gormley, 2020; Kaynak & Ekşi, 2014; Kraft & Goodell, 1993; Marsall et al., 2021; Pu, Zhang, Tang, & Qiu, 2020; Remr, 2023). However, because of its conceptual complexity and ambiguities, it has often been integrated with healthy lifestyle behaviors, such as exercise, healthy food consumption, and substance use, particularly in early studies (e.g., Divine & Lepisto, 2005; Jayanti & Burns, 1998; Kraft & Goodell, 1993). To them, health consciousness was defined as engaging in healthy behavior and/or not engaging in unhealthy behavior; health-conscious individuals are those who exercise regularly, eat healthy foods, and avoid alcohol and other substances.

However, Gould (1998, 1990) considered health consciousness as a psychological trait. Correspondingly, Hong (2009) defined health consciousness as "an individual's comprehensive mental orientation toward his or her health," rather than actual behavior, and identified three underlying dimensions: Self-health awareness, health responsibility, and health motivation (p. 8). According to Hong (2009, 2011), health-conscious individuals are more likely to self-monitor their mental and physical health conditions in daily life, have their own responsibility to take care of their health, and are highly motivated to be in a healthy condition. In this regard, health consciousness is an inner state underlying actual behavior and is not issue-specific (see Hong, 2009; 2011 for a complete review).

Owing to its psychological nature, one's health consciousness influences several aspects related to health from both attitudinal and behavioral perspectives. In this regard, health consciousness is believed to be "a higher-level switch controlling multiple light bulbs in someone's brain at once" (Hong, 2009, p. 7). Studies have revealed that it strongly affects daily routines and preventive health behaviors, such as exercise and dietary habits (Gould, 1998; 1990; Iversen & Kraft, 2006; Pu et al., 2020). Moreover, it is positively related to (a) active health information seeking and learning, (b) attention to information, and (c) subsequent incorporation into one's behavior (Dutta-Bergman, 2005, 2006; Dutta, 2007; Gould, 1998; 1990; Hong, 2011; Iversen & Kraft, 2006; Kaskutas & Greenfield, 1997).

More recently, the COVID-19 pandemic has increased public attention to health at both the individual and social levels. Lee and Bae (2022) argued that the COVID-19 outbreak increased the level of health consciousness by stimulating individuals' interest in health and sanitation, helping individuals check their body condition regularly, and encouraging them to seek health information via the Internet and television. Accordingly, recent studies have focused on the effects of health consciousness on protective behaviors and tourism decisions during the COVID-19 outbreak (Chang

& Lee, 2020; 2021; Lee & Bae, 2022). Another line of research has investigated the effect of health consciousness on the decision to buy eco-friendly products (Cho, 2011; Kim, 2014) and eating habits (Cho,2015; Kim, Lee, & Lee, 2016). Despite scholarly attention to the importance of health consciousness, studies inclined to rely on a few limited measurement items selectively adapted from previous literature, without concept explication, scale development, and/or validation processes. Furthermore, notably, only a few studies (e.g., Chung, Park, & Park, 2016) have used the concept of health consciousness in the context of physical activity. The current study aims to fill these gaps.

Given its significance in the realm of health research, Hong (2009) proposed an 11-item health consciousness scale by examining prior scales and literature that have been applied in the US context (e.g., Hong, 2011). Accordingly, the current study aims to test and validate the Korean version of the Health Consciousness scale. By doing so, it can provide valuable baseline information about individuals' comprehensive orientations toward health, which can be used to develop effective campaigns and interventions for a variety of health issues, including the promotion of physical activity.

Research Methodology

Survey Procedure and Sample

A series of surveys were conducted at a large university in a metropolitan area of Seoul, South Korea, in 2018 and 2019. At the beginning of the semester (spring 2018, fall 2018, and spring 2019), participants enrolled in a course titled "Health and Physical Exercise" were asked to complete a survey questionnaire in print. According to the ethical research guidelines, their participation was voluntary, and they were allowed to quit any time without penalty. Consequently, 525 valid responses were collected for the analysis.

Most participants were in their early 20s, accounting for 97.3% of the sample, and the gender was balanced with men (52.2%) and women (47.8%) among them. As for their academic status, the number of sophomores (44.8%) was followed by those of freshmen (31.8%), juniors (11.8%), and seniors (11.6%). Their majors appeared to be related to business and economics (44.6%), humanities, social sciences, and education (30.1%), sciences and engineering (20.4%), and others (5.0%).

Measurements

Health consciousness. The three-dimensional, eleven-item scale proposed by Hong (2011) was translated into Korean. Two English-Korean bilinguals first translated the English scale to Korean independently and discussed it with the researchers until they reached an agreement; they were then pilot-tested with ten Koreans to check whether there was any ambiguity or awkwardness. The list

of items is provided in the Appendix. Responses were marked on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Only the seventh item ("I only worry about my health when I get sick.") was reverse-coded for higher scores to indicate greater levels of health consciousness.

Attitudinal and behavioral outcomes in relation to physical activity were measured to check predictive validity. Table 1 presents the list of measurement items. All measures on the list were rated on a five-point scale from 1 (not at all) to 5 (very much).

(a) Perceived social, physical, and psychological benefits of physical activity. One's attitudes toward physical activity were measured to test the strength of beliefs about physical activity's outcomes in three dimensions ¬– perceived social (4 items), physical (4 items), and psychological benefits (3 items).

(b) Perceived barriers to physical activity. The three items measured how strongly respondents perceived barriers to engaging in physical activity in terms of costs, time, and facilities.

(c) Two-week physical activity. Four items were used to measure how strongly a respondent had engaged in physical activity in the two weeks before data collection. Following Armitage and Sprigg (2010), the items measured the degree of how hard, consistently, regularly, and much, an individual involved in physical activity in the past two weeks.

(d) Regular physical activity. The respondents were asked whether they engaged in regular physical activity (at least two or three times a week).

(e) Information seeking for physical activity. Respondents were asked whether they sought further information to better involvement in physical activity.

(f) Recommendation to others. Respondents were asked whether they recommended others engage in physical activity.

Table 1. Measurement items

Variables Items	α
Perceived social benefits of physical activity "Physical activity enhances teamwork and cooperation" "Physical activity helps people concern others" "Physical activity enhances the feeling of group solidarity" "Physical activity strengthens the friendship among peers"	.831
Perceived physical benefits of physical activity "Physical activity helps better sleep at night" "Physical activity helps prevent overweight and obesity" "Physical activity helps prevent many lifestyle diseases" "Physical activity helps raise digestive function"	.811
Perceived psychological benefits of physical activity "Physical activity reduces stress and anxiety from daily life" "Physical activity cultivates endurance" "Physical activity helps concentration of mind"	.795
Perceived barriers to physical activity (reverse-coded) "I feel no burden for paying the cost for physical activity" "I have enough time for physical activity" "I have facilities to easily access for physical activity"	.606
Two-week physical activity engagement I engaged in physical activity in the past week weeks… "as hard as possible" "as consistently as possible" "as regularly as possible" "as much as possible"	.920
Regular physical activity "I engage in regular physical activity (at least two or three times a week)."	
Information seeking for physical activity "I seek information via books and videos to better involvement in physical activity."	
Recommendation to others "I recommend others engage in physical activity."	

Research Findings

Structure Identification of the Scale

The eleven items were divided into two underlying dimensions from exploratory factor analysis (EFA) using principal axis factoring with an oblique rotation method (i.e., promax with Kaiser normalization). The two factors, accounting for 74.5% of the total variance, were determined based on Kaiser's rule (eigenvalue $\geq$ 1), and the eleven items were successfully loaded onto one of the two factors. As Table 2 indicates, seven items were loaded on the first factor (factor loadings: .501−.910), and the remaining four to the second factor (factor loadings: .674−.829). The two factors were correlated at .580 (i.e., factor correlation matrix).

Table 2. Results of EFA and item analysis (N=525)

Factor Items	Factor loading	Eigenvalue (% of variance)	α	Item Analysis				
				Mean	SD	Correlated item-total correlation	Squared multiple correlation	α if item deleted*
Factor 1		5.571 (60.647)	.896					
HC1	.910			4.90	1.208	.804	.768	.874
HC2	.883			5.00	1.225	.780	.757	.875
HC3	.869			4.66	1.369	.761	.679	.876
HC4	.501			5.01	1.210	.577	.380	.888
HC5	.811			5.07	1.220	.806	.707	.874
HC6	.702			4.45	1.359	.652	.510	.883
HC7r	.590			3.73	1.602	.451	.274	.900
Factor 2		1.534 (13.942)	.797					
HC8	.829			6.01	.978	.480	.482	.892
HC9	.674			5.82	1.118	.435	.424	.895
HC10	.544			5.69	1.152	.649	.621	.883
HC11	.726			6.05	.991	.508	.558	.891

*Note.**Calculated based on Cronbach's α of the scale in total (.894)

Item Analysis

Item analysis was performed to determine the unique contributions of the items. First, "correlated item-total correlation" and "squared multiple correlation" were examined. These two scores are the most widely used indicators in item analysis and are calculated by removing one item at a time from the analysis. The former scores (i.e., correlated item-total correlation) indicate the correlation between a removed item and the sum of the remaining items; and this score should be greater than .20 to be legitimate as part of the scale (Murphy & Davidshofer, 2005). As Table 2 indicates, the scores of the correlated item-total correlation were in the range of .435~.806, indicating a satisfactory level.

The squared multiple correlation is another correlation indicator between a removed item and the remaining set of items and particularly represents the coefficient of determination (R^2) when the removed item is regressed on the remaining items. Thus, a score close to one indicates that the removed item is perfectly predicted by the remaining items (Murphy & Davidshofer, 2005). Thus, if the squared multiple correlation approaches one, the item is not useful enough to make a unique contribution to the scale, and removing it would help improve internal consistency (Murphy & Davidshofer, 2005). In the current study, the scores of the squared multiple correlations were between .274 and .768,

indicating that each item made a unique contribution to the scale.

The reliability of the scale was examined using Cronbach's α for internal consistency. The α score is calculated by using sample variance, total scores, and number of items, and generally, α > .7 is considered to be a reliable set of items, with greater scores being more reliable. In the current analysis, α scores within a factor were .896 and .797 (for Factor 1 and Factor 2, respectively), and that of the whole scale was .894, indicating satisfactory internal consistency (See Table 2).

Validity of the Scale

Among the few techniques used to test scale validity, this study examined predictive validity by checking correlations with attitudinal and behavioral outcomes in terms of physical activities (See Table 3). Overall, although to varying degrees, the two factors were significantly associated with a variety of attitudinal and behavioral outcomes. Pearson's r and r^2 scores were used to indicate the extent of the correlation.

Table 3. Testing predictive validity (N = 525)

	Factor 1	Factor 2
Attitudinal outcomes		
Perceived social benefits of physical activity	.339*** (.115)	.319*** (.102)
Perceived physical benefits of physical activity	.236*** (.056)	.286*** (.082)
Perceived psychological benefits of physical activity	.412*** (.170)	.299*** (.089)
Perceived barriers to physical activity	-.336** (.113)	-.297** (.088)
Behavioral outcomes		
Two-week physical activity	.343*** (.118)	.159*** (.025)
Regular physical activity	.353*** (.125)	.172*** (.030)
Information seeking for physical activity	.342*** (.117)	.119** (.014)
Recommendation to others	.420*** (.176)	.195*** (.038)

Note. Scores represent Pearson's r and r^2(in parentheses); ***p < .001, **p < .01

Particularly, Factor 1 was significantly correlated with the perceived psychological benefits of physical activity (r = .412, p < .001; r^2 = .170), followed by perceived social benefits (r = .339,

$p < .001$; $r^2 = .115$) and physical benefits ($r = .236$, $p < .001$; $r^2 = .056$). Moreover, it was also correlated with perceived barriers to physical activity at a moderate level ($r = -.336$, $p < .001$; $r^2 = .113$). For Factor 2, the association was the strongest with perceived social benefits ($r = .319$, $p < .001$; $r^2 = .102$), compared to the physical ($r = .286$, $p < .001$; $r^2 = .082$) and psychological benefits ($r = .299$, $p < .001$; $r^2 = .089$). The correlation with perceived barriers was significant ($r = -.297$, $p < .001$; $r^2 = .088$). Overall, a higher level of health consciousness was associated with greater benefit and lower barrier perceptions of physical activity.

Regarding behavioral outcomes, overall, Factor 1 exhibited greater correlations than Factor 2. Particularly, Factor 1 was most strongly associated with the recommendation of others to engage in physical activity ($r = .420$, $p < .001$; $r^2 = .176$). Moreover, it was related to the strength of one's physical activity over the past two weeks ($r = .343$, $p < .001$; r2 = .118), regular exercise ($r = .353$, $p < .001$; $r^2 = .125$), and information seeking for physical activity ($r = .342$, $p < .001$; $r^2 = .117$).

For Factor 2, although all were significant, the correlation scores were under .2 with two-week physical activity ($r = .159$, $p < .001$; $r^2 = .025$), regular physical activity ($r = .172$, $p < .001$; $r^2 = .030$), information seeking ($r = .119$, $p < .01$; $r^2 = .014$), and recommendations to others ($r = .195$, $p < .001$; $r^2 = .038$).

Discussion

This study examined the Korean translation of the HC scale proposed by Hong (2009, 2011). With hundreds of college students at a Korean university as respondents, the HC scale also appeared to apply to the Korean context. The Korean version of the HC scale was highly reliable, and the results of the item analysis indicated that each item contributed satisfactorily to the scale. Furthermore, the HC score was significantly correlated with attitudes and behaviors regarding physical activity, indicating a satisfactory level of predictive validity.

However, notably, unlike the three underlying dimensions of health consciousness (i.e., health awareness, health responsibility, and health motivation), only two dimensions were identified in the Korean version based on the results of the EFA. The differences resulting primarily from Factor 2 were collapsed by the two dimensions of health motivation and responsibility. The dimension of health awareness was found in the separation both in the US and Korean respondents. However, in the Korean version, health motivation is regarded along the same lines as health responsibility, while the two dimensions are conceptually and statistically independent in the English version. In the current study, Korean college students seemed to play an active personal role in taking care of their health (i.e., health responsibility) with their health motivation. In other words, in the respondents' minds, it is

reasonable to assume responsibility for improving and maintaining their health if they wish to be healthy.

This implies that, over the past few decades, individual-level efforts have been intensively emphasized rather than social and systematic support for several health issues in South Korea. For example, large-scale nationwide health campaigns have been conducted to promote healthy behaviors, such as anti-smoking, cancer screening, healthy diet, and regular medical check-ups. In a highly health information-saturated environment, such persuasive messages may be internalized, particularly among those who are raised and educated. Although not specifically examined in the current study, health motivation and responsibility may remain combined in one's mind more strongly now than in the past. This is because having witnessed the COVID-19 pandemic, the individual's responsibility to protect himself or herself from the contagious disease has been highlighted more than before. For the past two to three years, people worldwide have been forced to wear masks, maintain social distancing, avoid the 3Cs, and remain in self-quarantine. During the global health crisis, people were strongly motivated to be healthy without disease, sometimes anxiously, and responsibility was totally placed with the individuals.

Although not the key objective of this study, the results of testing predictive validity provide meaningful insights into the promotion of physical health. Particularly, Factor 1 (self-monitoring of health) exhibited greater predictive power than Factor 2 (health responsibility and motivation). In other words, self-monitoring was more strongly related to positive attitudes toward physical activity, actual involvement in physical activity, and recommendations to others for physical activity. Therefore, encouraging them to monitor and focus on their health condition can be more effective in promoting physical activity rather than directly persuading individuals to engage in responsible healthy behaviors or emphasize health values.

Additionally, according to the post-hoc analysis of gender differences, overall, both Factors 1 and 2 of the health consciousness scale were significantly correlated with other outcomes more strongly among men than women. However, the negative correlation between health consciousness and perceived barriers to engaging in physical activity was stronger among women than men. This implies that increasing health consciousness may be more effective in helping reduce the perceived barriers to physical activity among female college students.

Limitations and suggestions for future studies

Despite the significance of this study, it has some limitations that require further improvement in future studies. First, the results should be interpreted with caution, because this study relied on responses from college students. Generally, health-related perceptions are highly affected by age; and

older people are more likely to be attentive to and concerned with their health than their younger people. Therefore, in future research, expanding the age spectrum of respondents is essential to increase its generalizability.

Second, this study was limited to testing predictive validity in terms of physical activity. Although physical activity is one of the prominent outcomes of showing one's orientation and interest in health, it is necessary to include other health-related behaviors such as medical check-ups, vaccination, and healthy food consumption. As the concept of health consciousness is generic rather than issue-specific, its applicability and predictability are widely open. Similarly, examining other types of validity (e.g., convergent validity, concurrent validity, discriminant validity) can strengthen the validity of the scale.

Furthermore, the explanatory power of health consciousness (based on r^2 scores) was relatively small. However, previous studies have revealed that several internal and external factors affect an individual's physical activity (e.g., Carrasco et al., 2021; Cho & Kim, 2019; Seefeldt, Malina, & Clark, 2002). Being cognizant of the complexity of the decision to engage in physical activity, this study's findings merit scholarly attention.

Although the English scale was carefully translated into Korean, nuanced differences may have delivered different meanings to Korean respondents. Some items seemed very similar when they were translated into Korean, leading to respondents considering them as repetition. Furthermore, given that the notion of health and health conditions can vary depending on several environmental contexts such as cultural, educational, social, and political systems, the scale should be elaborated in the Korean context to better capture the Korean environment. However, because the current study relied on a translation of the original scale, it could not reflect such contexts. For example, in Korea, the suicide rate among the young generation is high; thus, mental health should be integrated with measuring health consciousness, particularly for those at risk. In addition, South Korea is a rapidly aging country owing to its low birth rate and increasing life expectancy. In this regard, increasing attention has been paid to health in senior years. Therefore, in addition to the current generic HC scale, it would be useful to include measurement items customized for each age group.

Finally, as mentioned earlier, COVID-19 has significantly changed our daily lives, particularly in terms of our perceptions of health and health conditions. As Hong's (2011) original scale was developed a decade ago, it is imperative to examine changes in health consciousness before and after COVID-19. Although not intended, the data in the current study were collected before the COVID-19 outbreak; thus, collecting data in the post-COVID-19 era would provide an interesting and valuable comparison.

Conclusion

In the post-COVID-19 era, several health issues have become increasingly critical at both individual and social levels. This study assumed that the level of health consciousness influences a wide range of cognitive, attitudinal, and behavioral decisions regarding health. Therefore, measuring it validly and reliably is an initial step for understanding health-related perceptions and behaviors. The results of the item analysis and reliability and validity tests met the statistical standards of the Korean version of the HC scale. Furthermore, this study demonstrated its usefulness in predicting attitudes toward and engagement with physical activity. Despite its limitations, the Korean version HC scale in the current study is a simple yet useful index that clarifies the concept and captures its complexity. As a comprehensive indicator of health orientation, the Health Consciousness Scale is expected to provide baseline information and has the potential to be used for successful health promotion campaigns and interventions, including those regarding physical activity, healthy diet, and disease prevention.

Acknowledgements

This research was supported by the Chung-Ang University Research Scholarship Grants in 2021.

References

Carrasco, C., Mendes, F., Bravo, J., Pereira, C., & Tomas-Carus, P. (2021), Factors influencing physical activity: A cross-sectional study of the community-dwelling older adults in a Portuguese rural area. International Journal of Older People Nursing, 16(3), e12371.

Chang, D.-Y., & Lee, C.-K. (2021). A study on the travel decision-making process in the context of COVID-19 using the theory of planned behavior: Moderating role of health consciousness. Korean Journal of Hospitality & Tourism [Korean Journal], 30(2),135-149.

Chang, D.-Y., & Lee, C.-K. (2020). Impact of the risk perception of COVID-19 and health consciousness on protective motivation and behavioral intention. Korean Journal of Hospitality & Tourism [Korean Journal], 29(7),191-208.

Cho, M.-S., & Kim, J.-Y. (2019). A study of factors affecting the physical activity of youth: Analysis of data from the 13th youth health behavior online survey in 2017. Journal of Exercise Rehabilitation, 15(1), 8-14.

Cho, W. (2015). A study on the health consciousness and eating habits of the Seongnam dining owners. Journal of The Korean Society of Food Culture [Korean Journal], 30(4), 447-456.

Cho, Y.-J. (2011). The influence of male consumers' clothing benefits sought on purchase intention of functional clothing: Focused on well-being health consciousness and age. Fashion & Textile Research Journal [Korean Journal], 13(6), 900-908.

Chung, W.-Y., Park, S.-J., & Park, S.-G. (2016). The relationship of exercise intention, self-efficacy, health consciousness, exercise behavior of college students. Journal of Sport and Leisure Studies [Korean Journal], 66, 569-577.

Divine, R. L., & Lepisto, L. (2005). Analysis of the healthy lifestyle consumer. Journal of Consumer Marketing, 22(5), 275-583.

Dutta-Bergman, M. J. (2005). Developing a profile of consumer intention to seek out additional information beyond a doctor: The role of communicative and motivation variables. Health Communication, 17(1), 1-16.

Dutta-Bergman, M. J. (2006). A formative approach to strategic message targeting through soap operas: Using selective processing theories. Health Communication, 19(1), 11-18.

Dutta, M. J. (2007). Health information processing from television: The role of health orientation. Health Communication, 21(1), 1-9.

Gould, S. J. (1988). Consumer attitudes toward health and health care: A differential perspective. Journal of Consumer Affairs, 22(1), 96-118.

Gould, S. J. (1990). Health consciousness and health behavior: The application of a new health consciousness scale. American Journal of Preventive Medicine, 6(4), 228-237.

Hong, H. (2009). Scale development for measuring health consciousness: Re-conceptualization. Paper presented at the International Public Relations Research Conference, Miami, FL.

Hong, H. (2011). An extension of the Extended Parallel Process Model (EPPM) in television health news: The influence of health consciousness on individual message processing and acceptance. Health Communication, 26(4), 343-353.

Iversen, A. C., & Kraft, P. (2006). Does socio-economic status and health consciousness influence how women respond to health related messages in media? Health Education Research, 21(5), 601-610.

Jayanti, R. K., & Burns, A. C. (1998). The antecedents of preventive health care behavior: An empirical study. Academy of Marketing Science, 26(6), 9-15.

Kalkbrenner, M. T., & Gormley, B. (2020). Development and initial validation of scores on the Lifestyle Practices and Health Consciousness Inventory (LPHCI). Measurement and Evaluation in Counseling and Development, 53(4), 219-237.

Kaskutas, L. A., & Greenfield, T. K. (1997). The role of health consciousness in predicting attention to health warning messages. American Journal of Health Promotion, 11(3), 186-193.

Kaynak, R. & Ekşi, S. (2014). Effects of personality, environmental and health consciousness on understanding the anti-consumptional attitudes. Procedia - Social and Behavioral Sciences, 114, 771-776.

Kim, J. J., Lee, E. J., & Lee, K.-R. (2016). Study on health consciousness and eating habits of workers at deluxe hotels in Seoul and Gyonggi-do regions. Journal of The Korean Society of Food Culture [Korean Journal], 31(6), 587-596.

Kim, Y. (2014). Impacts of health and environment consciousness on pro-environmental clothing purchasing and disposal behaviors. The Research Journal of the Costume Culture [Korean Journal], 22(3), 371-382.

Kraft, F. B., & Goodell, P. W. (1993). Identifying the health conscious consumer. Journal of Health Care Marketing, 13(3), 18-25.

Lee, S.-H., & Bae, J.-H. (2022). The effect of health consciousness due to COVID-19 and JOMO travel propensity on wellness tourism intention in the endemic era: Using the ETPB model. Journal of Tourism and Leisure Research [Korean Journal], 34(12), 69-89.

Marsall, M., Engelmann, G., Skoda, E. M., Teufel, M., & Bäuerle, A. (2021). Validation and test of measurement invariance of the adapted Health Consciousness Scale (HCS-G). International Journal of Environmental Research and Public Health, 18(11), 6044.

Murphy, K. R., & Davidshofer, C. O. (2005). Psychological testing: Principles and applications (6th ed.). Prentice Hall: Upper Saddle River, JN, USA.

Pu, B., Zhang, L., Tang, Z., & Qiu, Y. (2020). The relationship between health consciousness and home-based exercise in China during the COVID-19 pandemic. International Journal of Environmental Research and Public Health, 17(16), 5693.

Remr, J. (2023). Validation of the Health Consciousness Scale among the Czech population. Healthcare, 11(11), 1628.

Seefeldt, V., Malina, R. M., & Clark, M. A. (2002). Factors affecting levels of physical activity in adults. Sports Medicine, 32(3), 143-168.

[Appendix] Health Consciousness Scale in English and Korean

Factor Items	English	Korean
Factor 1		
HC1	I'm generally attentive to my inner feelings about my health.	나는 일상생활 중 내 건강 상태에 주의를 기울인다
HC2	I'm very self-conscious about my health	나는 내 건강에 대해 스스로 많이 의식한다
HC3	I reflect on my health a lot	나는 내 건강에 대해 깊은 생각을 많이 한다
HC4	I notice how I feel physically as I go through the day.	나는 일상생활 중 내 몸 상태가 어떠한지 잘 알아차린다
HC5	I'm concerned about my health all the time.	나는 항상 내 건강에 대해 관심을 가지고 있다
HC6	Good health takes active participation on my part	건강을 위해서 내가 적극적으로 노력한다
HC7r	I only worry about my health when I get sick. (Reverse-coded)	나는 내가 아플 때만 건강에 대해 신경을 쓴다(역코딩)
Factor 2		
HC8	I take responsibility for the state of my health.	나의 건강 상태는 내가 책임져야 한다
HC9	My health depends on how well I take care of myself.	나의 건강은 내가 나를 얼마나 챙기느냐에 달려있다
HC10	Living life in the best possible health is very important to me.	건강한 상태를 유지하는 삶은 나에게 매우 중요하다
HC11	Living life without disease and illness is very important to me.	질병이 없고 아프지 않은 삶은 나에게 매우 중요하다

Note.The items in English were from Hong (2009, 2011).

Received : June 30
Reviewed : Augest 17
Accepted : August 27