Comparison study for body image education of domestic and overseas female college students

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The 2016 health education index showed such tendency as well including their raised obesity index, and reported that they are much interested in body images appearing externally. Accordingly, in this study, we conducted the self-reported questionnaire aimed at a total of 389 subjects composed of domestic (n = 226) and overseas (n = 163) female college students from Asia, Europe, and Latin America so as to investigate their body images for face, figure, and health through questionnaires. In this context, a survey was conducted with the method of this study, consequently indicating that overseas subjects are more greatly positive and active to body images (face, figure, and health) by health level, exercise preferences, extent of body activities and body weight than domestic ones. These results reflect a different viewpoint between those subjects and reveal that overseas subjects are more committed to maintaining their health through body activities compared to domestic ones. Moreover, it is considered that domestic subjects tend to place a higher value on external beauty rather than beauty in terms of physical health, thereby it is most important to change the beauty values. Therefore, in the future, health education should play a critical role in promoting discussions for plans and practical strategies of improving health between students and in participating actively in health behaviours.

Keywords: Female college student, Body image, Face, Figure, Health, Education

INTRODUCTION

Body image is common interests of the eastern and western society, in particular, young students are much interested in it. In each country, there are a variety of educations to make body image improve, and it is believed that those are greatly affected by the cultural environments.

Previous studies for body images reveal that most of young women including female college students strongly tend to lose weight through diet due to a growing tendency to desire slim bodies, and point out risks that may be caused by an excessive weight loss in a short period such as hypotension, irregular menstruation, anorexia nervosa and osteoporosis (Lake et al., 2000; Lee, 1993). Body mass index (BMI) is a weight-related factor affecting greatly body images. According to studies of each country, the obesity association in Japan defined a BMI of less than 18.5 as a thin person in the 2000s. In the studies performed by western researchers (Malina and Bouchard, 1991; Roche et al., 1996), they defined thin people using body weight percentage or skinfold thickness. In China, policies for solving social problems related to obesity were established and studies for eating habits, health attitude and nutrition knowledge of college students are conducted. In addition, as an actual case for body images, Sakamaki et al. (2005) indicated that normal BMI was 80.5%, 66.6% in thin people after performing a self-reported questionnaire targeting 540 college students aged 19–24 years, thus suggesting the necessity of educations for regular eating habits and body activities.

In addition, a survey aimed at 191 male and female black students showed that the obesity of black female students was more than that of black male students, and proposed the importance of health education as well as detailed studies for them (Gipson et al., 2005). As a result of a survey for body image satisfaction of female college students, it was noted that 67.2% of students are not satisfied with their body images. Therefore, health education should play a critical role in promoting discussions for plans and practical strategies of improving health between students and in participating actively in health behaviours.
female students aimed at 96 college students, female students (85.7%) with low BMI was highly satisfied with their body images, and female students (45.5%) with overweight BMI expressed low satisfaction regarding their body images. Collectively, these previous studies have mainly focused on body weight and BMI, however, studies emphasizing body activities as an active measure for improving body images have seldom been conducted.

Therefore, in this study, we will propose education methods for improving body images in an active manner by investigating the difference in body images affected by health level, exercise preferences, extent of body activities, and body weight between domestic and overseas college students owing to diversely expressed body images by countries and cultures, and provide the results as basic materials for subsequent studies.

MATERIALS AND METHODS

Participants
Participants (n = 389) for this study were female college students from various parts of domestic (Korea = 226) and overseas (Asia, Europe, Central & Southern America = 163) countries. All participants were undergraduate students with a mean age of 21.3 years.

Measures
A body image questionnaire was devised to estimate body size and satisfaction with body characteristics. The questionnaire included three parts: Part 1 is anthropometric data, based on the subjects’ report of age, sex, body weight, and height. BMI was calculated from measured height and weight. Part 2, a body image rating scale, consists of female faces and figures of increasing size with accompanying numerical ratings. Part 3 consists of questions about the subject’s health level, exercise preferences and physical activities.

Data analysis
The IBM SPSS ver. 18.0 (IBM Co., Armonk, NY, USA) was used for data compilation and statistical analysis. All data are reported as mean and standard deviation. Nationality body images were tested with t-tests. For the purpose of analysis, P-value of less than 0.05 was considered significant and some items of scale was grouped into a single entity such as poor and fair, into fair, and very good and excellent, into excellent.

RESULTS

Body images of domestic and overseas countries
As a result of analysing the body images (face, figure, and health) between domestic and overseas countries, there were no significant differences in face between domestic and overseas female college students, but overseas female college students made a much greater positive evaluation about their figure and health than domestic subjects (Table 1).

Body images by health level
In the overall body images by health level of domestic and overseas subjects, face, figure, and health were respectively evaluated
as ‘bad’ (31 students, 8.0%), ‘normal’ (114 students, 29.3%), ‘good’ (114 students, 46.8%), and ‘very good’ (62 students, 15.9%). Among these results, in the case of the domestic female college students, face, figure and health were respectively evaluated as ‘bad’ (27 students, 11.9%), ‘normal’ (81 students, 35.8%), ‘good’ (94 students, 41.6%), and ‘very good’ (24 students, 10.6%), thus showing a high tendency in the ‘normal’ and ‘bad’ item. In the case of overseas female college students, face, figure, and health were respectively evaluated as ‘bad’ (4 students, 2.5%), ‘normal’ (33 students, 20.2%), ‘good’ (88 students, 54.0%), and ‘very good’ (38 students, 23.3%), thus showing a high tendency in the ‘good’ and ‘very good’ item in contrast to domestic subjects (Table 2, Fig. 1).

**Body images by exercise preferences**

As a result of analysing the overall body images by exercise preferences of domestic and overseas female college students, face, figure and health were respectively shown as ‘very dislikeable’ (12 students, 5.3%), ‘dislikeable’ (47 students, 12.1%), ‘normal’ (139 students, 55.7%), ‘likeable’ (152 students, 59.1%), and ‘very likeable’ (38 students, 9.8%). Among these results, in the case of domestic subjects, face, figure and health were respectively evaluated as ‘very dislikeable’ (12 students, 5.3%), ‘dislikeable’ (35 students, 15.5%), ‘normal’ (75 students, 32.2%), ‘likeable’ (90 students, 39.8%), and ‘very likeable’ (14 students, 6.2%), thus indicating high scores in the ‘normal’ and ‘likeable’ item. Overseas subjects presented a high tendency in the ‘normal’ and ‘likeable’ item similarly to domestic ones, that is, face, figure, and health were respectively evaluated as ‘very dislikeable’ (1 student, 0.6%), ‘dislikeable’ (12 students, 7.4%), ‘normal’ (64 students, 39.5%), ‘likeable’ (62 students, 38.3%), and ‘very likeable’ (24 students, 14.8%) (Table 3, Fig. 2).

**Body images by extent of body activity**

With regard to the overall body images by extent of body activities of domestic and overseas female college students, face, figure, and health were shown as ‘insufficient’ (226 students, 68.4%), ‘sufficient’ (114 students, 33.4%), and ‘excessive’ (8 students, 2.3%).

### Table 3. Body images by exercise preferences

| Body image | Number | Mean ± SD | F      | Post hoc |
|------------|--------|-----------|--------|----------|
| **Face**   |        |           |        |          |
| Very dislikeable | 13     | 2.89 ± 0.94 | 5.594*** | a < c,e |
| Dislikeable  | 47     | 2.91 ± 0.84 |        |          |
| Normal      | 139    | 3.05 ± 0.62 |        | b < d,e |
| Likeable    | 152    | 3.33 ± 0.88 |        |          |
| Very likeable | 38     | 3.43 ± 0.88 |        | c < d,e |
| **Figure** |        |           |        |          |
| Very dislikeable | 13     | 2.56 ± 1.1  | 6.648*** | b,c < d |
| Dislikeable  | 47     | 2.26 ± 0.85 |        |          |
| Normal      | 139    | 2.53 ± 0.84 |        |          |
| Likeable    | 152    | 2.93 ± 0.93 |        | b,c < e |
| Very likeable | 38     | 3.07 ± 1.12 |        |          |
| **Health** |        |           |        |          |
| Very dislikeable | 13     | 2.85 ± 1.27 | 8.678*** | a,b,c < d |
| Dislikeable  | 47     | 3.08 ± 0.91 |        |          |
| Normal      | 139    | 3.18 ± 0.72 |        |          |
| Likeable    | 152    | 3.53 ± 0.81 |        | a,b,c < e |
| Very likeable | 38     | 3.78 ± 0.86 |        |          |

SD, standard deviation. ***P < 0.001.

![Fig. 1. Body images by health level of domestic and overseas female college students (face, figure, and health). DFCS, domestic female college student; OFCS, overseas female college student.](http://www.e-jer.org)
Among these results, domestic female college students showed high proportion in the ‘insufficient’ item. In detail, face, figure, and health were evaluated as ‘insufficient’ (171 students, 75.7%), ‘sufficient’ (51 students, 22.6%), and ‘excessive’ (4 students, 1.7%). In the case of the overseas females, face, figure, and health were evaluated as ‘insufficient’ (95 students, 58.3%), ‘sufficient’ (63 students, 38.7%), and ‘excessive’ (5 students, 3.0%), thus indicating a higher tendency in the ‘insufficient’ and ‘excessive’ item (Table 4, Fig. 3).

### Body images by weight

In the overall body images by weight of domestic and overseas female college students, face, figure, and health were respectively evaluated as a ‘underweight’ (10 students, 2.6%), ‘little underweight’ (35 students, 9.0%), ‘standard weight’ (196 students, 50.4%), ‘little overweight’ (112 students, 28.8%), and ‘overweight’ (36 students, 9.2%). In the case of domestic female college students, face, figure, and health were respectively evaluated as ‘underweight’ (7 students, 3.1%), ‘little underweight’ (25 students, 11.1%), ‘standard weight’ (105 students, 46.5%), ‘little overweight’ (66 students, 29.2%) and ‘overweight’ (23 students, 10.1%), thus showing higher scores in the ‘standard weight’ and

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**Table 4. Body images by extent of physical activities**

| Body image | Number | Mean ± SD | F     | Post hoc |
|------------|--------|-----------|-------|----------|
| Face       |        |           |       |          |
| Insufficient | 266   | 3.08 ± 0.74 | 5.287** | a < b    |
| Sufficient  | 114   | 3.32 ± 0.69 |       |          |
| Excessive   | 9     | 3.47 ± 0.51 |       |          |
| Figure      |        |           | 11.917*** | All      |
| Insufficient | 266   | 2.52 ± 0.91 |       |          |
| Sufficient  | 114   | 2.91 ± 0.93 |       |          |
| Excessive   | 9     | 3.56 ± 0.75 |       |          |
| Health      |        |           | 6.945** | a < b    |
| Insufficient | 266   | 3.24 ± 0.86 |       |          |
| Sufficient  | 114   | 3.57 ± 0.77 |       |          |
| Excessive   | 9     | 3.69 ± 0.75 |       |          |

SD, standard deviation. **P<0.01. ***P<0.001.

**Table 5. Body images by weight**

| Body image | Number | Mean ± SD | F     | Post hoc |
|------------|--------|-----------|-------|----------|
| Face       |        |           |       |          |
| Underweight | 10    | 2.64 ± 0.72 | 3.643** | a < b,c |
| Little underweight | 35 | 3.41 ± 0.75 |      |          |
| Standard weight | 196 | 3.22 ± 0.71 |      |          |
| Little overweight | 112 | 3.05 ± 0.69 |      |          |
| Overweight  | 36    | 3.04 ± 0.84 |      |          |
| Figure      |        |           | 27.732*** |        |
| Underweight | 10    | 2.67 ± 0.82 |      | a < b,a,e |
| Little underweight | 35 | 3.28 ± 0.79 |      |          |
| Standard weight | 196 | 2.95 ± 0.86 |      | b > c,d,e |
| Little overweight | 112 | 2.22 ± 0.81 |      |          |
| Overweight  | 36    | 1.81 ± 0.77 |      | c > d,e |
| Health      |        |           | 3.149* |        |
| Underweight | 10    | 2.58 ± 0.77 |      | a < b,c,d,e |
| Little underweight | 35 | 3.44 ± 0.81 |      |          |
| Standard weight | 196 | 3.43 ± 0.8 |      |          |
| Little overweight | 112 | 3.26 ± 0.88 |      |          |
| Overweight  | 36    | 3.30 ± 0.90 |      |          |

*P<0.05. **P<0.01. ***P<0.001.
'little overweight' item. Overseas subjects presented also higher percentage in the ‘standard weight’ and ‘little overweight’ item similarly to domestic ones, that is, face, figure and health were respectively shown as a ‘underweight’ (3 students, 1.8%), ‘little underweight’ (10 students, 6.1%), ‘standard weight’ (91 students, 55.8%), ‘little overweight’ (46 students, 28.2%), and ‘overweight’ (13 students, 7.9%) (Table 5, Fig. 4).

**DISCUSSION**

This study aims to compare a set of values for body images between domestic and overseas female college students and utilize the relevant results as basic materials for education. For these purposes, we performed a self-reported questionnaire-based survey on body images targeting domestic and overseas female college students within the range of BMI (18.5–26.0 kg/m²), whose average height and body weight are 162.0 cm and 54.6 kg respectively. And any health issues including mental disorders were not found in those female students.

As a result of analysing the difference in body images dividing them into face, figure, and health between domestic and overseas subjects, there were significant differences in figure and health except for face, thus showing that overseas subjects made a greater positive evaluation about figure and health compared to the do-
Moreover, as American black women are generous to overweight stood that their values for body images may be differently expressed. Thus, it should be fully under-
still exist in some of Arab countries despite being on the decrease overweighted women (Musaiger, 2011). Therefore, it should be fully under-
and cultural differences may have an effect on body images. In addition, as a re-
sult of analysing the body images by exercise preferences, extent of body activities and body weight, overseas female college stud-
ts expressed also more active and positive body image values than domestic subjects. Kim et al. (2002) asserted that healthy students were satisfied with body images and weight compared to unhealthy ones in their study, in contrast, Wharton et al. (2008) pointed out that body images and weight may be negatively asso-
with weight control of college students, and that needless weight control may lead eating habits in a wrong direction (Ryu and Yoon, 2000). Therefore, body images can be affected by dis-
vers factors such as sex, age, height, BMI, rice style, eating habit, and cultural and environmental difference. In this study, overseas female college students were shown to be more greatly active and positive to body images, and such a result suggest that national and cultural differences may have an effect on body images. In this regard, Musaiger and Al-Manai (2013) showed that, as a re-
sult of investigating obesity and influence of mass media aimed at 288 female college students of Kuwait, mass media played an im-
portant role in reducing body weight, and that 30% of female college students with normal weight and 81% of those with obe-
sity were not satisfied with their body weight. These results indi-
cate that colleagues, parents and mass media played a crucial role in losing weight by leading their eating habits in a positive direc-
In addition, 19% of Kuwait female college students and 43% of Qatar female college students believe strongly that men like overweighted women (Musaiger et al., 2004), and these people still exist in some of Arab countries despite being on the decrease gradually (Musaiger, 2011). Therefore, it should be fully under-
stood that their values for body images may be differently expressed. Moreover, as American black women are generous to overweight and obesity, body images are not affected by those factors. In this context, body images are expressed in various ways according to racial and cultural differences. And a diversity of dissatisfaction rates of body images by each country can be listed in ascending order as follows: China (33%), Australia (34.9%), Greece (45%), Brazil (47.3%), Taiwan (50%), Norway (56%), Turkey (56.7%), EU (69%), and America (73.3%) (Akdevelioğlu and Gümüs, 2010; Hassapidou, 2006; Hassapidou and Papadopoulou, 2006; Kelly et al., 2005; Luo et al., 2005; McElhone et al., 1999; Meland et al., 2007; O’Dea, 2010; Ozmen et al., 2007; Wong and Huang, 1999). Thus, the dissatisfaction of body images emerges also diversely de-
going on countries.

This study explored the body image of the overseas subjects and compared them with domestic ones after simply combining fe-
college students from Asia, Europe, and Latin America into overseas ones owing to the lack of alien cases. Accordingly, it is im-
portant to investigate male college students as well as female ones by each country in subsequent studies. In conclusion, body image education for domestic female college students should play critical roles in helping them to actively take part in body activi-
ties and realize that to keep their face and figure in good condition is to elevate their body images. To this end, detailed educational and practical methods should be explored and prepared. Furthermore, these educations should be led in a positive way through diverse studies for eating habits and life styles.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was re-
ported.

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