

# Feasibility and acceptability of a prevention program for eating disorders (Me, You and Us) adapted for young adolescents in Korea

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Received: 5 May 2017 / Accepted: 23 August 2017 / Published online: 4 September 2017  
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## Abstract

**Purpose** The aim of this study was to assess the adaptability and acceptability of a prevention program.

**Methods** A total of 169 Korean students (83 boys and 86 girls) with a mean age of 12.3 years from a 6th grade class at an elementary school participated in the study. Mental health social workers delivered Me, You and Us, a school-based body image intervention program originally developed in the UK, through a set of six sessions. The participants were assessed in terms of their body satisfaction and self-esteem before the program, after the program, and at

1-month follow-up. They were also surveyed about their satisfaction and acceptability levels after the program.

**Results** At baseline, girls had lower body satisfaction and self-esteem than boys, and their body satisfaction and self-esteem improved after the program. The improved body satisfaction was maintained at the 1-month follow-up. The efficacy of the program on body satisfaction was positively correlated with the frequency of their baseline level of “fat talk.” The program was more effective in girls with possible symptoms of an eating disorder at baseline. 93.7% of boys and 77.4% of girls responded that they enjoyed the program.

**Conclusions** The program Me, You and Us was well-accepted by early adolescents in Korea and it can play a role in increasing body satisfaction and self-esteem by reducing “fat talk” in 6th grade students.

**Level of evidence** Level III, cohort study with intervention.

Gi Young Lee and Eun Jin Park are co-first authors.

**Electronic supplementary material** The online version of this article (doi:10.1007/s40519-017-0436-3) contains supplementary material, which is available to authorized users.

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**Keywords** Eating disorders · Prevention · Adolescents · Me, You and Us · Fat talk · Korea

## Introduction

The incidence of eating disorders peaks at ages 15–19, but early symptoms are common from the pre-adolescence and early adolescence years [1–3]. Childhood body dissatisfaction has been shown to strongly predict eating disorders in girls [4]. It follows that modifying body perceptions may prevent eating disorders.

The risk factors for eating disorders have been established [1, 5, 6], and many prevention programs target these factors. The recent generation of prevention programs includes more interactive content and persuasion principles from social psychology [7]. Most preventive interventions

target the individual but a wider community focus may be more appropriate [8].

School-based interventions provide an opportunity to provide programs that support environmental changes [9] and school-wide approaches to health promotion [10, 11]. School-based preventive interventions addressing eating disorders and body image issues for adolescents have been successful [12–14]. Those found to be effective tend to (a) target younger adolescents aged 12–13 years, (b) include some media literacy, self-esteem and peer-focused content, but not psychoeducation, and (c) have a multi-session format with an average of 5.02 h in total program length [15–22].

“Fat talk”, a ritualized form of negative commentary about weight and shape [23], is causally implicated as a proximal risk factor for disordered eating, body dissatisfaction, and negative affect and has the potential to be modified [24, 25]. Interventions to modify an individual’s fat talk may positively impact on both the individual and their friendship group [24]. The intervention “Me, You and Us” is a school-based prevention program developed in the UK to promote body satisfaction [26], focusing on peer interactions, specifically in relationship to “fat talk”, why this occurs, how it can be stopped and how to counter it by activities on giving and receiving compliments from others. In a randomized, controlled trial of the program, students in the intervention group exhibited a significant improvement in body esteem and self-esteem, as well as a reduction in thin-ideal internalization both at the end of treatment and 3 months later [26].

Body dissatisfaction is of concern for both genders [27]. School-based interventions have achieved modest improvements in body satisfaction in both girls and boys [28–30]. A program reported significant improvements in body image at post-test that were sustained until 6-months follow-up in boys [21].

Although few representative epidemiologic data are available for Asian populations, available evidence shows that eating disorders and associated attitudes and behaviors are also prevalent across these regions [31]. The dramatic cultural shift with rapid Westernization has prompted adolescents in Korea to accept Western ideals of beauty, and the resulting thin-body idealization has increased body dissatisfaction in Korea [32]. The pursuit of a thin physique in Korea has been widespread for individuals in their early teens. Among the students in 5th and 6th grades in Korea (11–12 years old), 23% of girls and 11.5% of boys within a normal weight range estimated that they were overweight [33]. Overall, 23.9% of Korean middle school students (27.8% of middle school girls) who were normal or underweight estimated that they were fat, and the number increased to 38.1% in high school girls [34]. 32.2% of Korean middle school students (43.8% of middle school

girls) tried to lose weight, and 16.0% of those who sought to lose weight (18.1% of middle school girls) engaged in pathologic eating-disordered behavior, such as purging, laxative abuse, or starvation [34]. Korean adolescents aged 12–15 years have higher levels of body dissatisfaction than children aged 9–11 years [35], and body dissatisfaction and a disordered body image result in a decrease in self-esteem [36].

As there is no overall difference in the childhood risk factors for anorexia nervosa in Korean women compared to the established risk factors in the UK [37], we considered that the prevention program developed in the UK can be adapted to Korean adolescents. In Korea, despite the apparent necessity to prevent problems related to body image and eating behavior, the current school education curriculum does not address body image problems nor does it attempt to prevent these pernicious and seemingly increasing problems. As there could be limitations in conducting Western-based intervention programs in another culture without appropriate cultural awareness [38], we were interested in determining whether an intervention program adopted from the Me, You and Us program could be applied to Korean students.

The aims of this study were to evaluate the feasibility, acceptability, and efficacy of implementing the Me, You and Us eating disorder prevention program for 6th grade girls and boys at an elementary school in Korea and to explore gender differences in the reaction to the program.

## Materials and methods

### Designs

All subjects were included in a single-arm prospective cohort study and participated in the program. Body esteem and self-esteem were measured at pre-intervention, post-intervention, and at 1-month follow-up of the program.

### Participants

All of the 6th grade students in six classrooms at an elementary school in the city of Goyang, Gyeong-gi province, South Korea participated in the intervention ( $N = 169$  in all;  $n = 29$  in class 1,  $n = 28$  in each of classes 2–6). Five students moved away to other schools for educational reasons; thus, 164 students completed the final follow-up assessment.

All participants were deemed by their teachers to have sufficient ability in comprehending the program. Informed consents were received from a parent or a guardian for each of the students. The assessments were made at baseline (pre-intervention), after the intervention (post-

intervention), and at 1-month follow-up. The flowchart describing study participants is shown in Fig. 1. This study was approved by the Institutional Review Board of the Seoul Paik Hospital of Inje University [ITT-2016-104].

## Intervention

Permission to use the Me, You and Us program in our study was obtained from Helen Sharpe. All materials for the sessions, including the instruction manual, workbooks, and PowerPoint™ slides, were translated into Korean by two bilingual, fluent in both English and Korean, psychology students studying for their Bachelor of Science degrees in the United States. We modified the Western media images and YouTube™ clips for the topic ‘Happiness’ from the original program using Korean images familiar to the Korean students. A focus group consisting of mental health professionals and school teachers reviewed all of the materials and confirmed that the materials were appropriate for 6th grade students in Korea.

The program Me, You and Us consisted of six sessions of 1-h lesson per week, as in the original program. The program targeted three different areas of risk: societal risk, peer group risk, and individual risk. ‘Societal risk’ referred to the internalization of the ideal of thinness as shown in the media, for which the intervention focused on media literacy; the ‘peer group risk’ referred to the experience of “fat talk” with friends, for which the intervention focused on peer interaction; and the ‘individual risk’ referred to mood and anxiety levels, for which the intervention focused on boosting mood and self-esteem [26].

The intervention was delivered by mental health social workers who were trained for the program from October to November of 2015, with a follow-up completed in December of 2015. Training for the instructors consisted of 6-h workshops run by one of the researchers, Y-R. K. One main instructor and a co-instructor delivered the sessions in a class. A school teacher monitored all sessions in a sample class.

## Outcomes

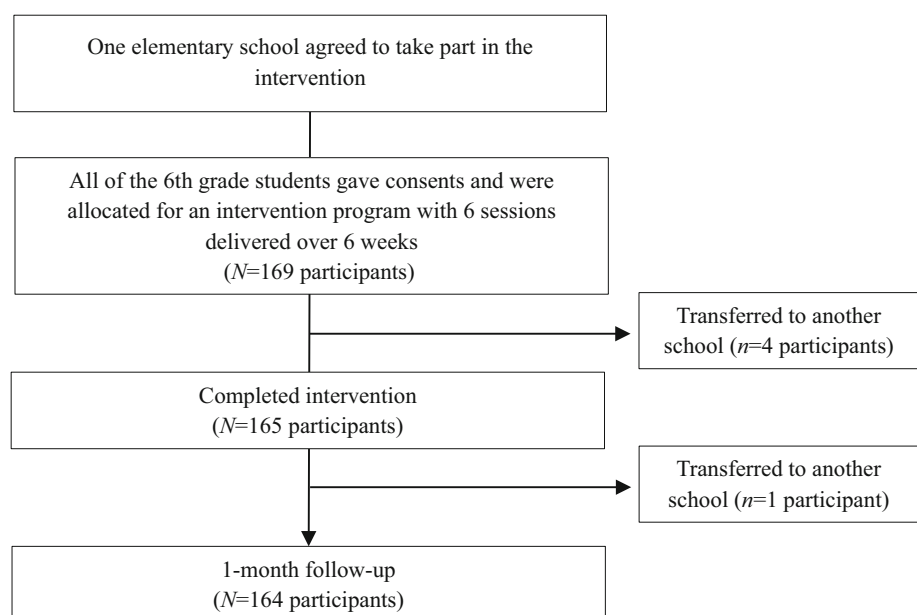
All outcomes were assessed using questionnaires as participants’ self-reports. Screening for eating disorders was conducted using the SCOFF questionnaire [39]. The participants were not explicitly made aware of the hypothesis of this study and also were asked to give feedback without subject identification.

The frequency and influence of “fat talk” were assessed at baseline using the following items, “What do you think of your body image?”, “How often do you ‘fat talk’ with friends?”, “How do you feel after ‘fat talk’?”, “How do you perceive your body after ‘fat talk’?”, and “How do you perceive yourself after ‘fat talk’?”

Body satisfaction and self-esteem were assessed at baseline, post-intervention and at 1-month follow-up. The primary outcome measured was body satisfaction, assessed using the Body Esteem Scale for Adults and Adolescents (BES) [40]. The secondary outcome measured was self-esteem, assessed using the Self-Perception Profile for Children (SPPC) [41].

The feasibility and acceptability of the program were assessed at the end of the program using two items with simple questions of “How useful did you find the program?” and “How much did you enjoy the program?”

**Fig. 1** Flowchart describing study participants



## SCOFF questionnaire [39]

The SCOFF questionnaire is a simple 5-item questionnaire with yes/no responses, and it was used to screen for possible cases of eating disorders. A score of  $\geq 2$  indicates a likely case of an eating disorder [39].

The SCOFF questionnaire was designed as a preliminary screening tool. A recent study with a multi-ethnic general population sample of adults in the UK found low sensitivity (53.7%) for the scale [42], but other studies showed better screening performance in adolescent populations [43, 44]. In this study, all participants who scored  $\geq 2$  were considered as SCOFF positive (SCOFF+) and at risk for an eating disorder while the rest were coded as SCOFF negative (SCOFF-).

## Body esteem scale for adults and adolescents (BES) [40]

A 23-item self-report questionnaire with a 4-point Likert scale was used to measure participants' body esteem. The total scores ranged from 23 to 92, with a higher score suggesting a higher level of body esteem. The internal consistency (Cronbach's alpha) of Korean adolescents was 0.83 in a previous study [45] and was 0.78 for this sample.

## Self-perception profile for children (SPPC) [41]

A 20-item self-report questionnaire with a 5-point Likert scale was used to measure participants' self-esteem. The total scores ranged from 20 to 100, with a higher score suggesting a higher level of self-esteem. The internal consistency (Cronbach's alpha) for Korean elementary school students was 0.91 in a previous study [46] and was 0.93 for this sample.

## Statistical analyses

Descriptive data are presented as mean plus standard deviation for continuous outcomes and as frequency and percentage for categorical outcomes. The results of screening for eating disorders and frequency of "fat talk" were compared across genders using Chi-square tests for categorical variables and analysis of variance (ANOVA) for continuous variables. The main outcome variables (body esteem and self-esteem) were analyzed with 2 (gender: girls, boys)  $\times$  3 (times: baseline, post-intervention, follow-up) two-way repeated measures ANOVA to determine possible differences across baseline, post-intervention, and follow-up by gender. The effect size (Cohen's

*d*) for continuous outcomes was calculated by computing differences in the adjusted means between the pre- and post-intervention. Because Me, You and Us was developed with a focus on "fat talk," we analyzed how much of an effect baseline "fat talk" had on the intervention outcome using the Pearson's correlation analysis. All statistical analyses were performed using SPSS 23.0 (IBM Corporation, Armonk, NY, USA).

## Results

### Demographic characteristics of participants

The characteristics of participants are presented in Table 1. The mean age of the participants was  $12.30 \pm 0.28$ , and their mean BMI was  $19.61 \pm 3.06$  kg/m<sup>2</sup>. Baseline BMI percentiles did not significantly differ between boys and girls with both groups scoring at approximately the 50th percentile for sex and age. Compared to boys, girls showed lower body satisfaction ( $t = 4.117$ ,  $df = 167$ ,  $p < 0.001$ ) and lower self-esteem ( $t = 4.755$ ,  $df = 167$ ,  $p < 0.001$ ) at baseline. The percentage of students who had possible symptoms of eating disorders measured by SCOFF (SCOFF  $\geq 2$ ) was 15.4% ( $n = 26$ ) and was significantly higher in girls ( $n = 19$ , 22.1%) than in boys ( $n = 7$ , 8.4%) [ $\chi^2(1) = 9.129$ ,  $p = 0.003$ ] (Table 1).

### Self-perception of fatness and the effect of "fat talk" of participants

The self-perception of fatness is presented as a bar graph in Fig. 2. The percentage of students feeling fat did not differ by gender [ $\chi^2(2) = 4.587$ ,  $p = 0.101$ ], with 58 (34.9%) students feeling fat, 25 (15.1%) feeling thin, and 83 (50%) feeling like they were in normal shape (Fig. 2).

The percentage of participants engaging in "fat talk," or negative commentary about weight and shape, are presented in Fig. 3. "Fat talk" frequency of more than once a week was higher in girls ( $n = 54$ , 62.8%) than in boys ( $n = 23$ , 27.7%) [ $\chi^2(3) = 21.373$ ,  $p < 0.001$ ] (Fig. 3a). There was no difference between genders in their feelings after "fat talk" [ $\chi^2(2) = 1.838$ ,  $p = 0.399$ ] (32 (19%) participants responded that they felt worse, 5 (3%) participants responded that they felt better, and 131 (78%) reported no change) (Fig. 3b). Meanwhile, a gender difference was found in self-perception of body after a "fat talk" [ $\chi^2(2) = 20.290$ ,  $p < 0.001$ ]; 42 girls (48.8%) and 15 boys (18.1%) responded that it led to them feeling dissatisfied with their body (Fig. 3c). Similarly, body self-confidence after "fat talk" differed by gender [ $\chi^2(2) = 9.218$ ,  $p = 0.027$ ] with 18 girls (20.9%) and 6 boys (7.3%)

**Table 1** Characteristics of the 6th grade student participants at baseline in a Korean primary school

Variables	Girls (n = 86)	Boys (n = 83)	T (df = 167)	p value
Age (years)	12.29 (0.27)	12.31 (0.29)	0.515	0.948
Weight (kg)	46.51 (9.37)	47.97 (10.95)	0.926	0.356
Height (cm)	153.72 (7.81)	155.24 (8.75)	1.181	0.239
BMI (kg/m <sup>2</sup> )	19.52 (2.81)	19.72 (3.31)	0.426	0.670
BMI percentile	54.61 (27.90)	48.16 (28.15)	-1.472	0.143
Body satisfaction <sup>†</sup>	56.88 (11.48)	63.85 (9.53)	-4.117	<0.001
Self-esteem <sup>‡</sup>	57.69 (13.98)	67.35 (13.74)	-4.755	<0.001
SCOFF+ <sup>§</sup> [n(%)]	19 (22.1%)	7 (8.4%)	$\chi^2(1) = 9.129$	0.003

Data are shown as mean (SD), if otherwise not specified

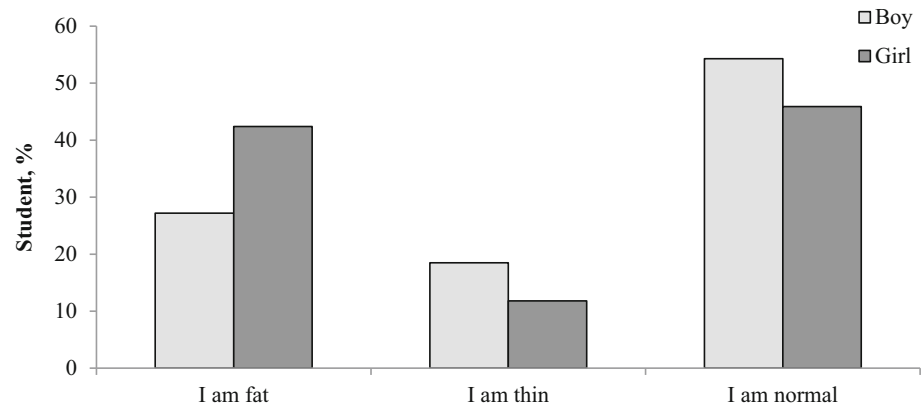
BMI body mass index

<sup>†</sup> Measured by body esteem scales for adults and adolescents

<sup>‡</sup> Measured by self-perception profile for children

<sup>§</sup> Sick, control, one stone (14 lbs/6.5 kg), fat, food score  $\geq 2$

**Fig. 2** Bar graph showing the percentages of the participants for self-perception of fatness



responding that they felt less confident in themselves (Fig. 3d).

**Impact of intervention on body satisfaction and self-confidence**

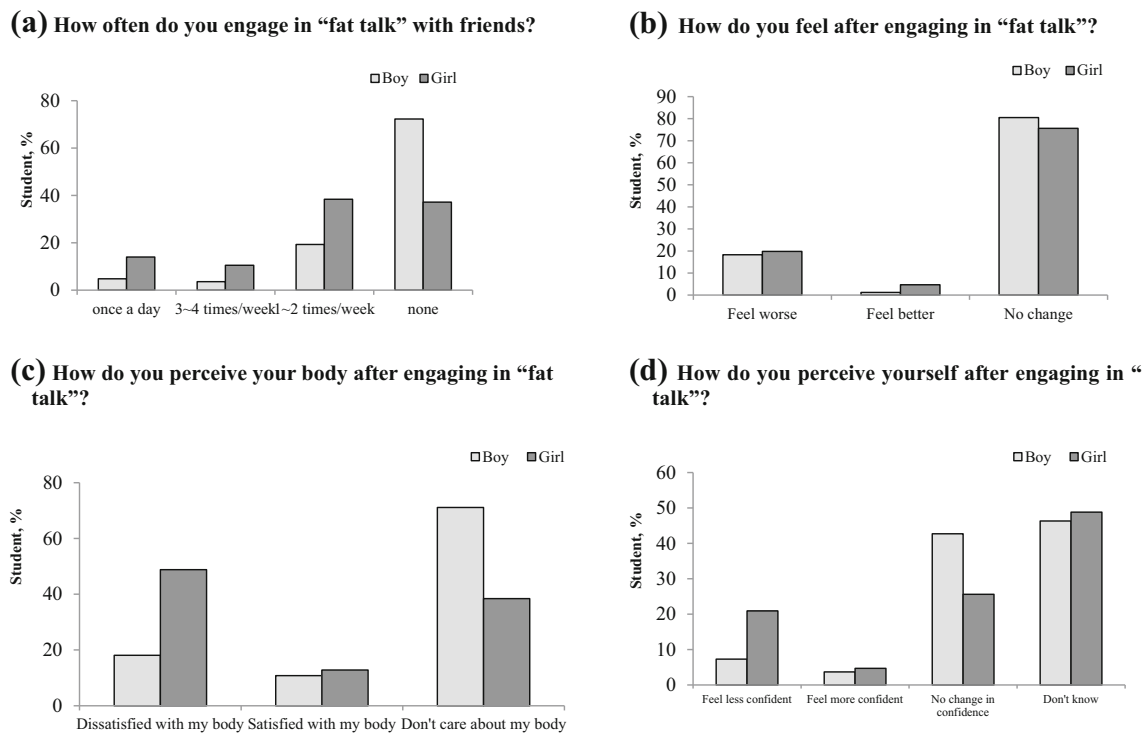
Table 2 shows the impact of intervention by gender on body satisfaction (Fig. 4) and self-esteem (Fig. 5). The two-way repeated measures ANOVA between intervention and gender on body satisfaction revealed effects of intervention [ $F(2,157) = 3.097, p = 0.048, \eta^2 = 0.038$ ] and gender [ $F(1,158) = 11.764, p = 0.001, \eta^2 = 0.069$ ] and an interaction effect [ $F(2,157) = 3.082, p = 0.049, \eta^2 = 0.038$ ], (Table 2; Fig. 4). In the following simple main effect analysis for investigating the interaction effect, girls showed significant change in their body satisfaction [ $F(2,79) = 9.170, p = 0.003, \eta^2 = 0.104$ ]. In girls, the paired comparison with Bonferroni correction revealed that body satisfaction increased significantly with a moderate effect after the intervention ( $t = 2.824, df = 83, p = 0.006, d = 0.258$ ), and this was maintained at 1-month follow-up. In boys, the simple main effect

analysis showed no changes in their body satisfaction in the time interval for measurement [ $F(2,79) = 0.094, p = 0.760, \eta^2 = 0.001$ ].

The two-way repeated measures ANOVA between intervention and gender on self-esteem revealed effects of intervention [ $F(2,156) = 4.679, p = 0.011, \eta^2 = 0.057$ ] and gender [ $F(1,157) = 21.896, p < 0.001, \eta^2 = 0.122$ ], but no interaction was observed [ $F(2,156) = 0.396, p = 0.647, \eta^2 = 0.005$ ] (Table 2; Fig. 5). The paired comparison with Bonferroni correction revealed that self-esteem increased significantly at post-intervention ( $t = 2.595, df = 162, p = 0.010, d = 0.167$ ), but this increase was not maintained at the 1-month follow-up.

**Subsidiary analysis of the impact of the intervention by SCOFF+ or SCOFF-**

Table 3 shows the effect of body satisfaction and self-esteem by SCOFF. Subjects who screened positive for symptoms of eating disorders (SCOFF  $\geq 2$ ) at baseline had an increase in body satisfaction both at post-intervention and at follow-up, whereas there was less change in the



**Fig. 3** Bar graphs showing the percentages of the participants engaging in “fat talk”

**Table 2** Impact of intervention measured at baseline, post-intervention, and at follow-up by gender

Measurements	Gender	Baseline	Post-intervention	Follow-up	Analysis				
					Effect	<i>F</i>	<i>df</i>	<i>p</i> value	$\eta^2$
Body satisfaction <sup>†</sup>	Boys	63.85 (9.53)	63.18 (8.99)	64.11 (9.40)	Main	3.097	2.157	0.048	0.038
	Girls	56.88 (11.48)	59.70 (10.32)	59.86 (11.33)	Interaction	3.082	2.157	0.049	0.038
Self-esteem <sup>‡</sup>	Boys	67.35 (13.74)	69.27 (16.11)	67.44 (14.31)	Main	4.679	2.156	0.011	0.057
	Girls	57.69 (13.98)	61.17 (14.66)	57.86 (11.55)	Interaction	0.396	2.156	0.647	0.005

Data are shown as mean (SD)

Analysis with 2 (girls, boys)  $\times$  3 (baseline, post-intervention, follow-up) two-way analysis of variance (ANOVA)

<sup>†</sup> Measured by the body esteem scale for adults and adolescents

<sup>‡</sup> Measured by the self-perception profile for children

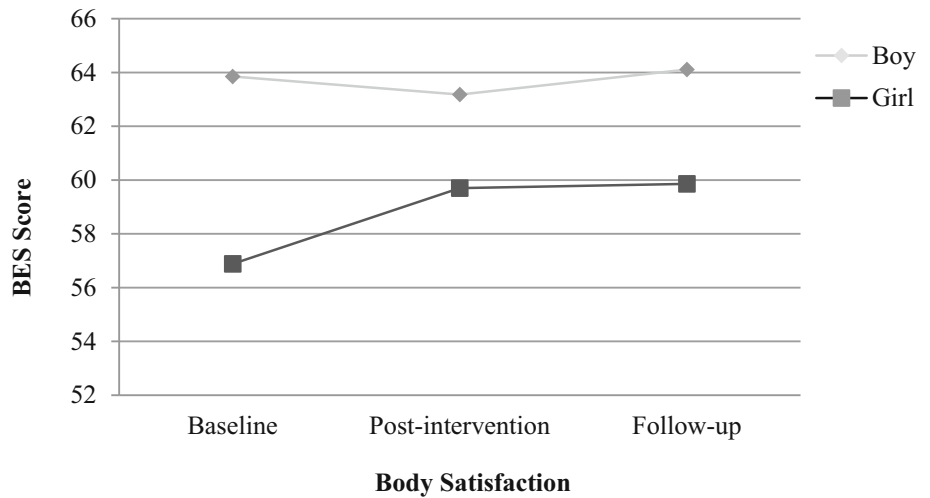
residual group ( $t = 4.119$ ,  $df = 161$ ,  $p < 0.001$ ,  $d = 0.895$  at post-intervention;  $t = 2.566$ ,  $p = 0.011$ ,  $df = 161$ ,  $d = 0.789$  at follow-up) (Table 3). The differences in self-esteem between SCOFF+ and SCOFF- participants were significant at follow-up ( $t = 1.612$ ,  $df = 161$ ,  $p = 0.109$ ,  $d = 0.350$  at post-intervention;  $t = 2.248$ ,  $df = 161$ ,  $p = 0.026$ ,  $d = 0.496$  at follow-up). Thus, the high risk group for eating disorders gained more benefit from the program in their body satisfaction and self-esteem.

### Factors correlated with the impact of the intervention

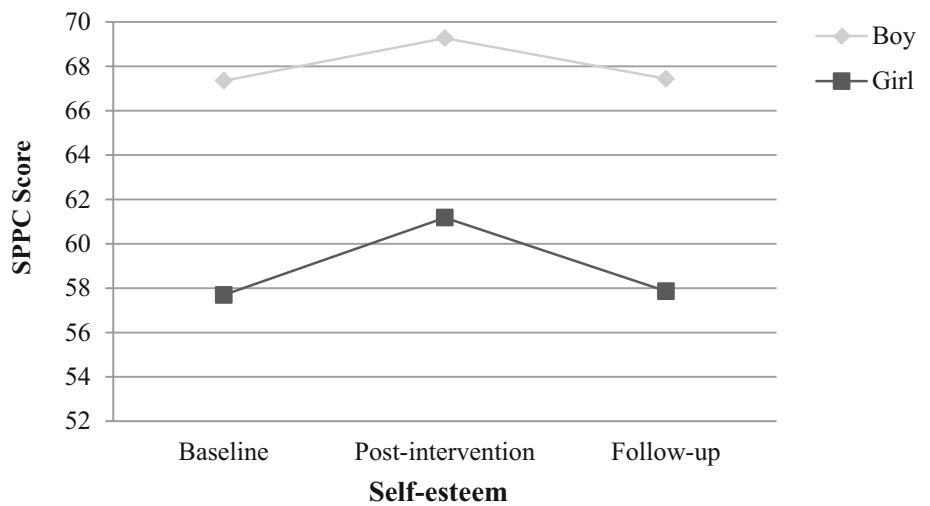
In a correlation analysis to find factors related to the impact of the intervention, the frequency of “fat talk” was correlated with the impact of the intervention on body satisfaction ( $r = 0.325$ ,  $p < 0.001$ ). There was no relation between frequency of “fat talk” and impact of the intervention on self-esteem ( $r = 0.120$ ,  $p = 0.130$ ).



**Fig. 4** Impact of intervention on body satisfaction measured at baseline, post-intervention, and at follow-up by gender. The two-way ANOVA between intervention and gender revealed the effect of intervention [ $F(2,157) = 3.097, p = 0.048, \eta^2 = 0.038$ ] and the interaction effect [ $F(2,157) = 3.082, p = 0.049, \eta^2 = 0.038$ ]. *BES* body esteem scales for adults and adolescents



**Fig. 5** Impact of intervention on self-esteem measured at baseline, post-intervention, and at follow-up by gender. The two-way ANOVA between intervention and gender on self-esteem revealed the effect of intervention [ $F(2,156) = 4.679, p = 0.011, \eta^2 = 0.057$ ], but no interaction effect [ $F(2,156) = 0.396, p = 0.647, \eta^2 = 0.005$ ]. *SPPC* self-perception profile for children



**Table 3** Effect of body satisfaction and self-esteem in SCOFF+ (scores  $\geq 2$ ) and SCOFF- (scores  $< 2$ ) participants

Score of difference	SCOFF+ ( $n = 24$ )	SCOFF- ( $n = 139$ )	$t(161)$	$p$ value	$d$
<b>Body satisfaction</b>					
Post-intervention—baseline <sup>†</sup>	7.84(10.10)	-0.09(8.621)	4.119	<0.001	0.895
Follow-up—baseline <sup>‡</sup>	5.54(8.16)	0.91(8.17)	2.566	0.011	0.789
<b>Self-esteem</b>					
Post-intervention—baseline <sup>§</sup>	6.32(13.76)	1.90(12.40)	1.612	0.109	0.350
Follow-up—baseline <sup>¶</sup>	5.08(10.95)	-0.65(11.62)	2.248	0.026	0.496

Data are shown as mean (SD)

Analysis with independent-samples  $t$  test

<sup>†</sup> Difference in score between “post-intervention” and “baseline” of the body esteem scales for adults and adolescents

<sup>‡</sup> Difference in score between “follow-up” and “baseline” of the body esteem scales for adults and adolescents

<sup>§</sup> Difference in score between “post-intervention” and “baseline” of the self-perception profile for children

<sup>¶</sup> Difference in score between “follow-up” and “baseline” of the self-perception profile for children

### Feasibility and acceptability of the intervention

98.8% of participants felt either neutral or positive about the usefulness of the intervention. 93.7% of boys and 77.4% of girls responded that they enjoyed the program. The acceptability of the program is presented in Fig. 6.

The results of the participants' feedback of the program are presented in Table 4. Most participants reported that the program provided appropriate information regarding eating disorders and stimulated awareness of eating disorders. Negative opinions included demands for more audio-visual materials and more reciprocal interaction between the instructors and participants.

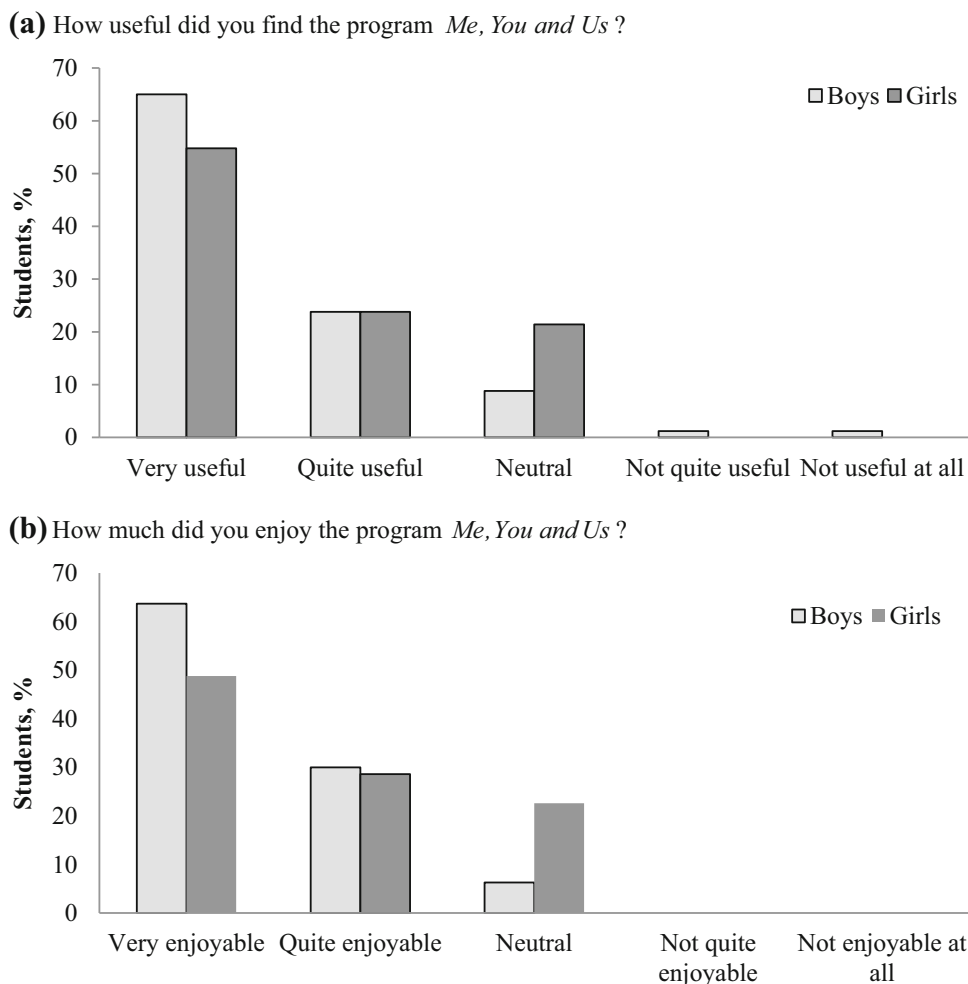
### Discussion

This study examined the feasibility and acceptability of an adaptation of an eating disorder prevention program, *Me, You and Us*, for young adolescents in Korea. The 6-week program was associated with an improvement in body

satisfaction and self-esteem, particularly in girls and those screened at high risk for eating disorders. The participants with higher frequency of “fat talk” had more improvement in body satisfaction from the intervention. Improved body esteem in girls was maintained, but general self-esteem returned to baseline at the 1-month follow-up. This intervention was unique that it included a positive psychological approach in its lessons to tackle depression and low self-esteem as well as targeting “fat talk”.

Girls had lower baseline body and self-esteem than boys in Korea, which is consistent with previous reports from North America [47–49]. These gender differences may be attributed to many factors including girls' hormonal and physical changes at this stage in puberty, which result in a greater proportion of body fat in adult females compared to adult males. We found that “fat talk” was common in 6th grade students at an elementary school; 63% of the girls engaged in this more than once a week. Following “fat talk,” 50% of the girls were left feeling dissatisfied with their body, and 20% had a decrease in self-esteem.

**Fig. 6** Bar graphs showing the percentages of the participants that found the intervention useful (a), and enjoyable (b)





**Table 4** Qualitative analysis for participants' feedback

Description for the program by participants	Category	Theme
Through this program, I got to know what I had never known I've never heard of eating disorders before this program	Information communication	Positive opinion
This was the first time I realized that it happened around us I should be careful when I talk about my body shape	Change of consciousness	
It was fun The activities were entertaining	Fun	
I wish I could join it again next time It was good	Intention of re-participating	
It was boring because most of the contents had text and explanation I want more interesting lessons	Utilization of audio–video materials	Negative opinion
The instructor did only his/her lectures	Reciprocal program	

15.4% of students were screened as SCOFF+ with possible symptoms of eating disorders (22.1% in girls and 8.4% in boys). This result is slightly lower than those of other studies in European adolescents of an older age, e.g., 21.7% of Spanish adolescents were screened as SCOFF+ in 2016 (28.1% in girls and 11.2% in boys with mean ages of 14.9) [50], and 21.9% of German adolescents were screened as SCOFF+ in 2006 (aged 11–17 years) [51].

The finding that the effectiveness of the program was higher in those with possible pre-clinical symptoms is in accordance with the literature where greater improvements in body image and other secondary factors were reported with high risk groups [15, 52, 53]. In the previous study by Sharpe et al., patients with eating disorders were excluded, which might explain the larger effect of our intervention than what was seen in girls at post-intervention in the UK. However, as the group with SCOFF+ was small in our study, these findings need to be replicated.

The design of the study differed from the original Me, You and Us study by Sharpe et al. by a few points. The students were slightly younger (mean age of 12.3 years) in this study than in the UK (mean age of 13.1 years). Also, we recruited both girls and boys to this study as the majority of elementary schools are mixed-gender environment. We found that the Me, You and Us program was acceptable to boys. This suggests that the program may be used to provide a positive and powerful influence in a mixed-gender environment. Teachers delivered the intervention in the UK, whereas social workers with no prior knowledge of eating disorders or body image interventions but with a 6-h training session delivered the course in Korea. The issue about how to best disseminate these interventions remains uncertain [22, 54–56].

The limitations of this study should be noted. One was the absence of a control group. Thus, the effects of the

program may be partly influenced by developmental effects, although this is unlikely since other studies have found increasing body dissatisfaction over time [57]. Furthermore, there may have been “regression to the mean” within subjects whereby those with a more severe form of an eating disorder score lower on body satisfaction or self-esteem over repeated measurements. This effect could be corrected statistically through a mixed effect model with a control group. The other limitation was the absence of measurements for eating pathology, appearance conversation, peer support, or depressive symptoms either before or after intervention, in an effort to minimize subject burden in the study.

In conclusion, we suggest that the program Me, You and Us can play a role in increasing body satisfaction and self-esteem by reducing “fat talk” in 6th grade students in Korea. This study demonstrated that the intervention is acceptable and adaptable for young Korean adolescents.

**Acknowledgements** We thank Dr. Helen Sharpe for offering the materials of Me, You and Us.

#### Compliance with ethical standards

**Funding sources** Financial support for this study was provided by the National Research Foundation of Korea (NRF) with a Grant funded by the Korean government (MSIP) (Grant #. NRF-2014S1A5B8063466). The funding sources had no involvement in the study design, collection, analysis, or interpretation of the data, writing the manuscript or the decision to submit the paper for publication.

**Conflict of interest** The authors declare no conflicts of interest.

**Ethical approval** All procedures performed in this study were in accordance with the ethical standards of the national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical measure.

**Informed consent** Informed consents were received from a parent or a guardian for each of the participants.

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