

< Original Articles >

Perception of an ideal body-shape: thin-looks with dieting in adolescent girls

Ryoko YANO¹⁾, Yoshiko NAGASAWA²⁾, Tadahiro SHIKIMI³⁾

Matsue National Hospital¹⁾,

Kitasato University Hospital²⁾

and Department of Fundamental Nursing, School of Nursing, Shimane University³⁾

Key words : ideal body-shape, adolescent girls, school-age years

ABSTRACT

The present study reviewed health education of adolescent girls by investigating the perception change of an ideal body-shape during the developmental phase. Results of questionnaires filled out by 581 girls from elementary, junior and senior high schools (grades 5-12) revealed that perception of body-shape dissatisfaction (BSD) induced: (i) thin-down desire; (ii) an unhealthy thin-down body-shape image perceived to be ideal; (iii) positive perceptions of thin-looks (such as “the supposition of looking more beautiful with thin-down”) eventually prompting dieting attempts; and (iv) a shift in body-shape consciousness/attention from adolescence (higher school-ages) to grades 7-8 from. BSD previously prevailing in grade 5 exacerbated with advancing school-age. As such, health education related to keeping a healthy body-shape is required from grade 5 to higher school-age levels, where interest in keeping an ideal figure is especially high.

INTRODUCTION

According to the National Nutrition Survey in Japan, 2002¹⁾, 67% of young females within the normal body-weight range perceived themselves as being overweight, and 41% of adolescent girls classified as underweight (thin)

attempted to practice weight reduction. Body-image is one of the primary concerns of young females, and ‘a thin body’ has recently been perceived as the ideal body-shape image (IBSI). In an attempt to further exacerbate the misinterpreted perceptions of these young females, mass media have globally portrayed thin-looks in models, actresses and celebrities as a trend in keeping feminine beauty^{2,3)}. The IBSI leads eventually to eating disorders (such as anorexia and bulimia nervosa) and increases unhealthy diet-related diseases⁴⁾.

Besides being a particularly important stage of physical growth and development from childhood to adulthood, adolescence is also a stage where the psychological state is most unstable, sensitive and easily influenced by changes in society and information from the mass media⁵⁻⁷⁾. Therefore, the thin-looks ideal tends to particularly influence adolescent girls.

The present study reviewed current health education and investigated the change in perceptions of an IBSI in adolescent girls during the developmental phase. We examined the actual situation of thin-down desire (TDD), motives for TDD, the IBSI and dieting attempts (DA) in school-age years by conducting questionnaires on girls from elementary (E5-E6 or grades 5-6), junior (J1-J3 or grades 7-9) and senior high (S1-S3 or grades 10-12) schools.

The threshold school-age year for body consciousness and attention on the IBSI perspective, and changes in perception pattern of body-shape dissatisfaction (BSD) in relation to TDD and DA were analyzed. In addition, current health education required in preventing unhealthy dieting in adolescent girls during their developmental phase was also reviewed.

METHODS

Data collection and ethical care

The study was conducted with approvals from the respective school principals of the participating schools. The relevant principals were briefed on the purpose of the study, questionnaires and data collection methods before the study was initiated. Questionnaires were distributed to students with the cooperation of teachers in the respective schools. Students were informed of the purpose of the study and given assurance of confidentiality of their answers in the anonymous survey. Students answered the questionnaires of their own free will.

Subjects

A total of 895 adolescent girls (159 elementary and 215 junior high-school students in Town H of Prefecture S; 521 high-school students in City M of Prefecture S) ranging from 11 to 18 years (yr) of age participated in the study. Of the questionnaires collected from 621 girls (recovery rate: 69.4%), effective responses (effective response rate: 93.6%) were collected from 581 students comprising respectively 112, 201 and 268 girls from elementary, junior and senior high schools; i.e. E5 (grade 5; n=45, 11 yr), E6 (grade 6; n=67, 12 yr), J1 (grade 7; n=57, 13 yr), J2 (grade 8; n=65, 14 yr), J3 (grade 9; n=79, 15 yr), S1 (grade 10; n=118, 16 yr), S2 (grade 11; n=63, 17 yr) and S3 (grade 12; n=87, 18 yr) students.

Methods

Background data of the subjects, including the school-age year, number of meals per day, snack intake, and like or dislike of exercise, were collected. Perception of an IBSI, own body-looks, TDD and DA related with perceived acquisition of an ideal body-shape were asked in the questionnaire.

The value for body mass index (BMI) is defined as the body weight (BW) per unit height (H) squared (i.e. BW/H^2), where BW and H are expressed in kg and m, respectively. According to the criteria of World Health Organization, any person indicating a BMI value of <18.5 is classified as thin (underweight), while values of $25 \leq$ to <30 and $30 \leq$ are categorized as overweight and obese, respectively.

RESULTS

1. Background of subjects

More than 90% of the students regularly consumed three meals daily (breakfast, lunch, supper). Sixty to 70% of E5-J3 (grades 5-9) students and ca. 90% of S1-S3 students consumed snacks between meals, while ca. 70% of students were found to like exercise. No differences in the school-age year with regard to these habits were found.

2. BSD

From data of students who expressed "satisfaction", "do not mind" and "dissatisfaction" about their body-shape, those with BSD increased from J1 to S1 levels, and approximated the same percentage after S1 (BSD in Fig. 1).

3. TDD

On the question of TDD, 50, 60-80 and 85-95% of E5-E6, J1-J3 and S1-S3 students answered affirmatively (TDD in Fig. 1).

4. DA

As to DA, the number of students who gave affirmative answers increased with age

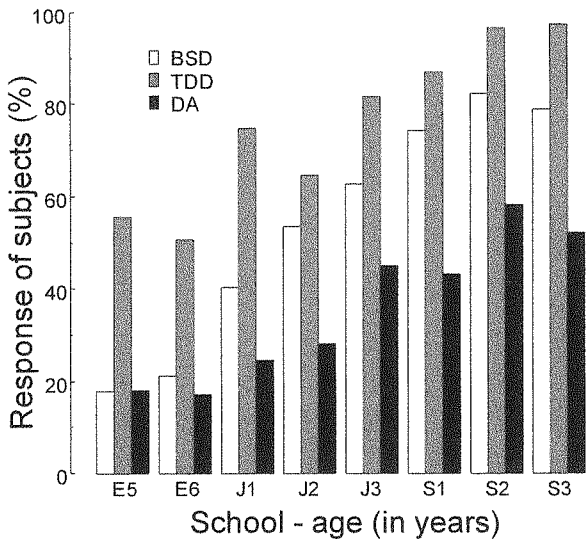


Fig. 1 Changes of the perception pattern in body-shape dissatisfaction (BSD), thin-down desire (TDD) and dieting attempts (DA) during school-age years. The ordinate represents % of subjects with BSD, TDD and DA, and the abscissa represents the school-age year where students were enrolled from years 5 (E5) and 6 (E6) of the elementary school level; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

Table 1 Correlation among the body-shape dissatisfaction (BSD), thin-down desire (TDD) and dieting attempts (DA).

	Pearson's correlation coefficient	p value
BSD vs. TDD	0.943	$p < 0.0001$
BSD vs. DA	0.955	$p < 0.0001$
TDD vs. DA	0.950	$p < 0.0001$

(i.e. higher school-age year). About 50% of S2 and S3 students answered affirmatively (DA in Fig. 1). Among BSD, TDD and DA, correlations were positively established between any two of these three parameters studied (Table 1).

5. Motives for TDD

The 11 items on the motive for TDD included (A) a feeling of disorder in body function, (B) teasing of appearance by peers and/or parents, (C) the supposition of looking more beautiful with thin-down, (D) a wish to look like a favorite entertainer/model, (E) a

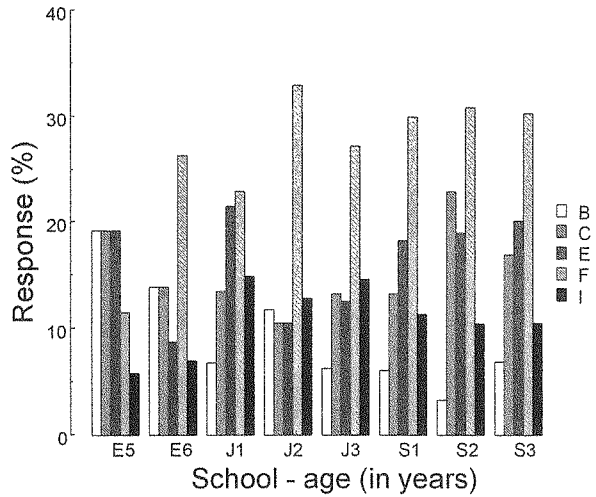


Fig. 2 Change of perception patterns in motives for thin-down desire (TDD) during school-age years. The ordinate displays the ratio of responders to each item (B: teasing of appearance by peers and/or parents; C: the supposition of looking more beautiful with thin-down; E: a wish to achieve a figure for fitting into trendy/favorite clothes; F: a dissatisfaction with own body-shape; I: immediate peers having thin-looks) for sum total of responders to 11 items (A-K) on the motive for TDD (in %). The abscissa represents the school-age year where students were enrolled from years 5 (E5) and 6 (E6) of elementary school; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

wish to achieve a figure for fitting into trendy/favorite clothes, (F) a dissatisfaction with own body-shape, (G) a wish to receive more attention, (H) the intention of having a boyfriend, (I) immediate peers having thin-looks, (J) a wish to stand out from others, and (K) miscellaneous. Of these 11 items, the most frequently chosen 5 items were B, C, E, F and I (Fig. 2; where plural answers were permitted). Although item B tended to decrease with higher school-age years, item F increased.

The sum total of the ratios of items C and E in each school-age year varied according to changes in the pattern of BSD and DA from J2 to S3 girls. Accordingly, changes in the pattern

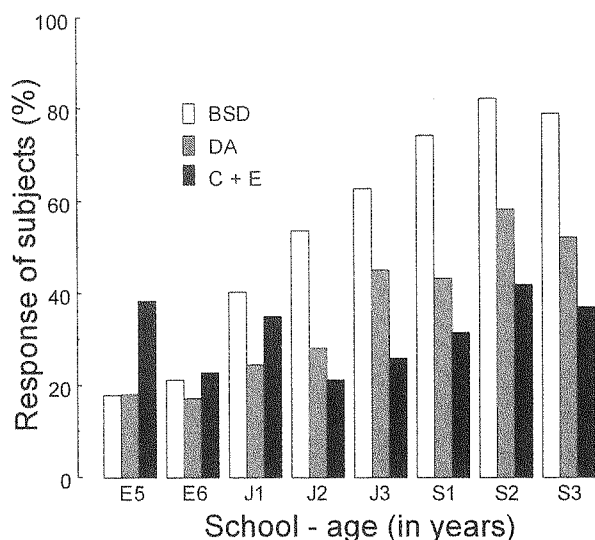


Fig. 3 Changes of the perception pattern in body-shape dissatisfaction (BSD), dieting attempts (DA) and motives for thin-down desire (TDD) (C: the supposition of looking more beautiful with thin-down, E: a wish to achieve a figure for fitting into trendy/favorite clothes) during school-age years. The ordinate represents % of subjects with BSD, DA and sum total (%) of responders to items C and E on the motive for TDD (C+E). The abscissa represents the school-age year where students were enrolled from years 5 (E5) and 6 (E6) of the elementary school level; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

of items (C+E) vs. BSD (Pearson's correlation coefficient=0.975, $p < 0.01$) and those of (C+E) vs. DA (Pearson's correlation coefficient=0.928; $p < 0.05$) were significantly correlated (Fig. 3).

6. DA-related descriptions

With DA-related descriptions, a simple approach such as "increase physical activity" or "do not eat between meals" was adopted by E5 to J1 students, while more complicated methods such as "carbohydrate-omitted diets", "physical workouts and jogging", "yoga" and "calorie restriction" were preferred by J2-S3 students. Among the methods adopted by J2-S3 students, there were certain practices that were likely to do more harm than good to their health (e.g.

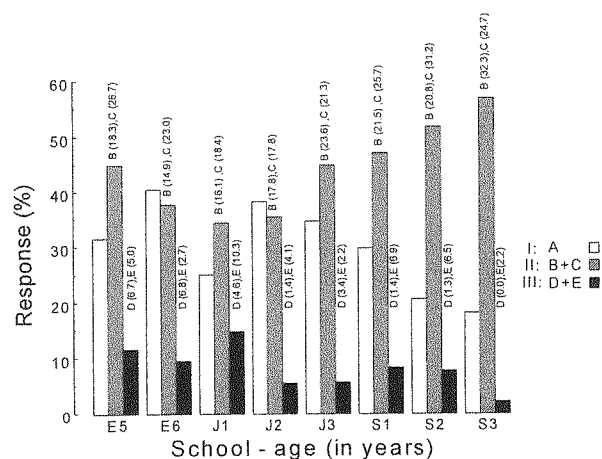


Fig. 4 Change of perception patterns in conceiving an ideal body-figure during school-age years. The ordinate displays the ratio of responders to each category (category I consists of item A (figure with standard body height and weight); category II consists of item B (figure of a favorite entertainer/model)+item C (size appropriate for fitting into trendy/favorite clothes); category III consists of item D (figure that parents recommend)+item E (figure that friends recommend)) for sum total of responders to 6 items (A-F) on an ideal figure (in %). Numerical values in parentheses show % of responders to each item. The abscissa represents the school-age year where students were enrolled from years 5 (E5) and 6 (E6) of the elementary school level; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

fasting).

As for acquiring information on dieting methods, many students obtained their information from television and magazines.

7. An ideal figure

The 6 items on the ideal figure (i.e. (A) standard body height and weight, (B) the figure of a favorite entertainer/model, (C) a size appropriate for fitting into trendy/favorite clothes, (D) a figure that parents recommend, (E) a figure that friends recommend, and (F) others) were classified into 3 categories consisting of I (item A), II (items B+C) and III (items D+E) (Fig. 4). Although more than 20% of the

Table 2 Numerical values assumed by students to be the ideal body-shape image at the respective school-age years. Students were enrolled from years 5 (E5) and 6 (E6) of the elementary school level; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

	Mean body height(cm)	Mean body weight(kg)	Mean BMI
E5	149	35	15.8
E6	156	40	16.4
J1	160	42	16.4
J2	160	43	16.8
J3	160	44	17.2
S1	161	47	18.1
S2	160	47	18.4
S3	160	47	18.4

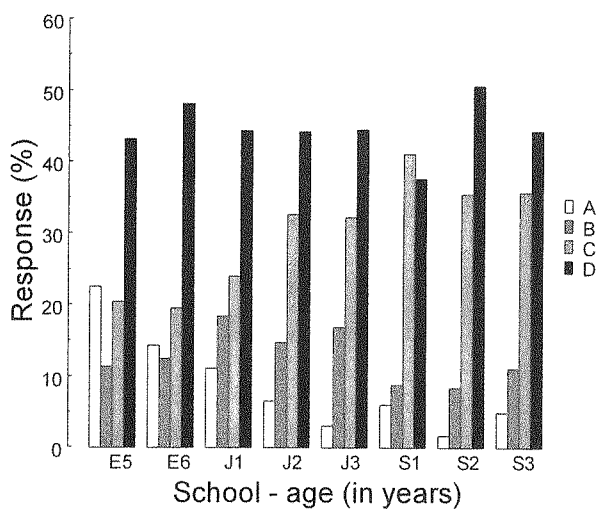


Fig. 5 Change of perception patterns in females of male preference for an ideal female figure during school-age years. The ordinate displays the ratio of responders to each item (A: do not mind; B: thin; C: slightly thin; D: standard type) for sum total of responders to 6 items (A-F) on male preference for an ideal female figure in %. The abscissa represents the school-age year where students were enrolled from years 5 (E5) and 6 (E6) of elementary school; years 1 (J1), 2 (J2) and 3 (J3) of junior high; and years 1 (S1), 2 (S2) and 3 (S3) of senior high schools.

students chose category I in all school-age years, the tendency decreased in J2-S3 students. Contrary to this, category II increased with the school-age year (J2-S3 students).

A numerical value was proposed to represent the ideal figure with standard body height and weight (Table 2). The average BMI value of the ideal figure calculated in each school-age year was 18.5, and the person in that range was thereby classified as thin.

In addition, of the 6 items (A-F) on male preference for female figure (i.e. (A) do not mind, (B) thin, (C) slightly thin, (D) standard type, (E) plump, (F) stout), the 4 most frequently chosen items were A, B, C and D (Fig. 5). Preference of item A decreased in the upper grades, whereas item D was about 40% throughout all the school-age years. More than 30% of J2-S3 students cited item C as the male preference for female figure.

8. TDD

From the TDD perspective, most students below the J1 level harbored the opinion that "unnatural dietary intake during the growth period of adolescence was not good for health". However, the number of students who harbored "a wish to thin-down" and "a wish to look cute with thin-looks" increased rapidly in J2-S3 levels. Descriptions of "wanting to know the concrete methods for thin-down, and those related with DA (such as "partial thin-down is difficult" and "going on a diet not lasting long")

were found in S3 students.

DISCUSSION

According to Matsuura⁸⁾, a tendency to look thin exists in girls even at the elementary school level. Results in the present study confirmed the tendency; ca. 50 and 20% of E5 students indicated TDD and harbored BSD (Fig. 1), respectively. BSD exacerbated with higher school-age years. The change of perception pattern in BSD was positively correlated with TDD and DA (Table 1). Our present results further confirm previous findings^{9,10)} that BSD is closely related to DA.

Among the 11 items on motivations for TDD, the change in perception pattern of item F was exclusively correlated with that of BSD (Pearson's correlation coefficient=0.739, $p<0.05$) during school-age years (Fig. 2). These results suggest that BSD induces TDD.

As motives for TDD, "teasing of appearance by peers and/or parents" and/or "immediate peers having thin-looks" are reportedly the potential triggers of inducing BSD¹⁰⁻¹²⁾. However, the change in the pattern of these TDD-related items in higher grades was not correlated with those of BSD; e.g. a decreasing tendency in "teasing of appearance by peers and/or parents" in higher school-age years, and "immediate peers having thin-looks" did not influence the change in the perception pattern of BSD (compare the change in perception pattern of BSD in Fig. 1 with those of Fig. 2-B and Fig. 2-I). Changes in the perception pattern of BSD seemed to have been derived from the psychosocial and cognitive development of adolescents. Results of the present investigation advocate this hypothesis in relation to the question of an ideal figure. Note that the tendency to adopt the perception of "a figure that parents or friends recommend" as the IBSI decreased in higher school-age years (Fig. 4-

III).

Among the 11 items on motivations for TDD, those of "the supposition of looking more beautiful with thin-down", "a wish to achieve a figure for fitting into trendy/favorite clothes", "a wish to receive more attention" and "a wish to stand out from others" were classified as positive factors for TDD. Among these positive items, the contribution of "a wish to receive more attention" and "a wish to stand out from others" indicated <5% in each school-age year, whereas the sum total of items "the supposition of looking more beautiful with thin-down (Fig. 2-C)" and "a wish to achieve a figure for fitting into trendy/favorite clothes (Fig. 2-E)" accounted for >20% in each school-age year, and the change in pattern was positively correlated with BSD and DA from J2 to S3 students (Fig. 3).

Between J1 and J2 levels, distinct differences in the perception of an ideal figure were encountered; i.e. decreases in category I were accompanied by increases in category II, and category III registered <10% in J2-S3 students (Fig. 4). On the contrary, consistency in the change of pattern of category I was not observed in E5-J1 students, and category III indicated >10%. In addition, increases in TDD (Fig. 1) and items C+E (Fig. 3) were displayed in J2-S3 students, whereas consistencies in the changes of TDD (Fig. 1) and items C+E (Fig. 3) were not observed in E5-J1 students. Moreover, comments on TDD and descriptions on DA were clearly different between students below the J1 and those above the J2 levels. A shift in adolescents' belief about their bodies or attention focused on the body-shape perspective at certain ages has been reported¹³⁾. The present results suggest that the shift may occur at around 14 years of age (ca. J2). In other words, the threshold school-age year for a change in perception pattern of BSD appeared to occur at the J1-J2 level.

Perception of thin-is-ideal in adolescent girls is a factor that molds female convictions of male preference for thin female figures¹⁴⁾. In the present study, more than 30% of students of J2 and higher school-age years perceived a slightly thin figure as the male preference for an ideal female figure (Fig. 5-C). However, this perception change did not correlate with the pattern change in TDD even from J2 to S3 levels. These results suggest that female convictions of male preference for thin female figures are not the primary concern in TDD.

As for the IBSI, more than 20% students chose "a figure with standard body height and weight" (Fig. 4-I). However, the numerical values assumed by students to be an IBSI with standard body height and weight were objectively classified as thin (Table 2). Furthermore, feedbacks such as "a favorite entertainer/model" and "a body size for fitting into trendy/favorite clothes" were the major contributing items to achieving an ideal body-shape (Fig. 4-II). These findings confirm that the IBSI perceived in adolescent girls diverged from an objectively assessed healthy body-shape image¹⁵⁾.

As for dieting, the present results strongly suggest that the increase in BSD induced TDD, and positive images of thin-looks such as "the supposition of looking more beautiful with thin-down" and "a wish to achieve a figure for fitting into trendy/favorite clothes" lead eventually to DA. About half of the J3 to S3 students were found to have a DA tendency (Fig. 1). Notwithstanding a trend to espouse thinness in the modern society, students from E5 to S3 levels should be well informed of the healthy practices in dietary intake with appropriate contents, as these school-age years span an important stage of growth development in humans. The mass media therefore has a responsible and crucial role in influencing adolescent students to avoid inflicting harm on their developing body

systems¹⁶⁾.

From the present results, the following guidelines on health education are warranted:

1. Since the thin-is-ideal image has already infiltrated and framed the mindset of E5-E6 students, guidance in shaping a healthy IBSI should start from elementary school-age, particularly from the E5 level.

2. Since students in J1-J3 levels begin to pay more attention to their own body-shape and tend to have TDD with DA, enforcement of concrete health education related to the inadequacies of a thin body is necessary at this stage.

3. As many students (about 50%) harbor a desire to dieting or having DA in senior high schools, reviews on the right choice of information on prevention of anorexia and leading a healthy life with proper guidance on healthy dietary contents and useful dieting methods are warranted.

Although the present study was conducted in a localized area, the desire to look thin is a world-wide phenomenon in our modern society. It is essential to give due attention to understanding the actual situation and factors affecting adolescent girls who have developed a mindset to look thin. There is therefore a need to carry out timely health education for proper physical development of adolescent students in any situation/locality that demands such educational guidance.

ACKNOWLEDGEMENTS

The authors would like to express their deep appreciation for the kind cooperation of participating students and teacher from all schools enlisted in the study.

REFERENCES

- 1) Ministry of Health, Labour and Welfare, Japan: The national nutrition survey in Japan,

- 2002 (In Japanese, publication date: December 24, 2003). Available: <http://www.mhlw.go.jp/houdou/2003/12/h1224-4.html>
- 2) Sypeck MF, Gray JJ, et al: No longer just a pretty face: Fashion magazine's depictions of ideal female beauty from 1959 to 1999. *Int J Eat Disord* 36: 342-347, 2004.
 - 3) Monro F & Huon G: Media-portrayed idealized images, body shame, and appearance anxiety. *Int J Eat Disord* 38: 85-90, 2005.
 - 4) Thompson JK & Stice E: Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science* 10: 181-183, 2001.
 - 5) Pinyerd B & Zipf WB: Puberty-timing is everything. *J Pediatric Nur* 20: 75-82, 2005.
 - 6) Turner-Henson A: Understanding adolescents: A guide for researchers. *J Neurosci Nurs* 37: 164-168, 2005.
 - 7) Ward LM: Children, adolescents, and the media: The molding of minds, bodies, and deeds. *New Directions for Child and Adolescent Development* 109: 63-71, 2005.
 - 8) Matsuura K: A study on the preference for thinness among female primary-school children. *The Journal of Child Health* 59: 532-539, 2000 (In Japanese).
 - 9) Ackard DM, Croll JK, et al: Dieting frequency among college females: Association with disordered eating, body image, and related psychological problems. *J Psychosomatic Res* 52: 129-136, 2002.
 - 10) Schutz HK, Paxton SJ, et al: Investigation of body comparison among adolescent girls. *J Appl SocPsychol* 32: 1906-1937, 2002.
 - 11) Jones DC: Body image among adolescent girls and boys: A longitudinal study. *Dev Psychol* 40: 823-835, 2004.
 - 12) Shroff H & Thompson JK: Peer influences, body-image dissatisfaction, eating dysfunction and self-esteem in adolescent girls. *J Health Psychol* 11: 533-551, 2006.
 - 13) Maltby J, Giles DC, et al: Intense-personal celebrity worship and body image: Evidence of a link among female adolescents. *Br J Health Psychol* 10: 17-32, 2005.
 - 14) Demarest J & Allen R: Body image: Gender, ethnic, and age differences. *J Soc Psychol* 140: 465-472, 2000.
 - 15) Owen PR & Laurel-Seller E: Weight and shape ideals: Thin is dangerous in. *J Appl Soc Psychol* 30: 979-990, 2000.
 - 16) Utter J, Neumark-Sztainer D, et al: Reading magazine articles about dieting and associated weight control behaviors among adolescents. *J Adolens Health* 32: 78-82, 2003.