

Gender Differences in Thin-Ideal Internalization and Drive for Thinness among Adolescents : Mothers' Roles in Children's Thin-Ideal Internalization.

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Abstract

A growing number of adolescents in Japan, both boys and girls, express a desire to be thin. Drive for thinness is considered to be a core determinant of negative body image and eating disturbances among adolescents. Although it has been claimed that drive for thinness is the result of internalizing society's thin-ideal, few studies have examined thin-ideal internalization among adolescents in Japan. Under the assumption that mothers bring societal values to their children, this study explored gender differences in how mothers' thin-ideal internalization influences children's thin-ideal internalization. A survey was conducted with 113 public junior high school students (47 boys and 66 girls) and their mothers. Children completed questionnaires assessing the magnitude of interaction with and pressure from mothers concerning body shape, thin-ideal internalization, drive for thinness, and dieting experiences. The questionnaire for mothers measured the magnitude of thin-ideal internalization. Results of path analyses demonstrated significant gender differences in the relationship between mothers' and children's thin-ideal internalization. Among girls, it was found that thin-ideal internalization was determined by mothers' thin-ideal internalization through perceived interaction with and pressure from their mothers concerning body shape. Interestingly, thin-ideal internalization was related to drive for thinness in girls, but not boys. Our findings suggest that mothers facilitate thin-ideal internalization in their children, particularly daughters. Implications for psychoeducational intervention on dieting during adolescence are discussed.

Key words: Thin-Ideal, Drive for thinness, Gender differences, Adolescents,
Mothers' influences

Introduction

Drive for thinness and dieting behaviors in adolescent boys and girls have been recognized in developed countries (Peterson, Paulson, & William, 2007), including Japan (Nakai, Sato, Tamura, Sugiura, & Hyashi, 2004). Although adolescents express their desire to be thin, most previous studies on drive for thinness and dieting behaviors in Japan have only focused on adult women and female college students.

Previous studies on young adult women have demonstrated that drive for thinness and dieting behaviors are driven by thin-ideal internalization, described as cultural idealization of thinness (Ahern, Bennett, & Hetherington, 2008; Gunewardene, Huon, & Zheng, 2001; Irving, Dupen, & Berel, 1998; Krones, Stice, Batres, & Orjada, 2005). Previous studies have also examined the role of sociocultural pressure in terms of pressure from family and peers, and found that sociocultural pressure was responsible for the

development of a drive for thinness and dieting behaviors in adolescents (Dittmar, 2005; McCabe & Ricciardelli, 2005; Polivy & Herman, 2004; Rukavia & Pokrajac-Bulian, 2006). Based on these findings, we hypothesized that idealizing thinness would underlie a drive for thinness in adolescents, and that adolescents would internalize a thin-ideal due to sociocultural pressure.

Emerging evidence reveals gender differences in the relationships between sociocultural influences, drive for thinness, dieting behavior, and body dissatisfaction (McCabe & Ricciardelli, 2005; Phares, Steinberg, & Thompson, 2004; Rodgers, Paxton, & Chabrol, 2009). Such gender differences are considered to be attributed to the particular emphasis on thinness as an ideal of female beauty in society (Striegel-Moore, Silberstein, & Rodin, 1986). It has been suggested that the ideal body shape for women is thinner than that of men, and that a thin-ideal is mainly an issue for women (Cusumano & Thompson, 2001; Heinberg, 1996; Smolak, 2004). Empirical studies on adolescents have found gender differences in the magnitude and form of sociocultural pressure to be

thinner (Chen, Gao, & Jackson, 2007; Rachael, Sahota, Atwal, & Turner, 2001). Therefore, we believe it is important to examine gender differences in thin-ideal internalization and sociocultural pressure for thinness in order to gain a better understanding of the mechanisms that drive a desire for thinness and dieting behaviors in adolescents.

Therefore, the present study was designed to explore gender differences in the relationships between thin-ideal internalization, mothers' influence, drive for thinness, and dieting behaviors among girls and boys in junior high school. We focused on mothers' influences as a way to assess sociocultural influences because it is likely that mothers bring social values to their children.

Thin-Ideal

A number of authors argue that the desire for thinness and chronic dieting among women is the result of the thin-ideal for female body shape in Western culture (e.g., Heinberg, 1996; Smolak, 2004). A sociocultural thin-ideal has been reported in Japan as well (Moroi & Kokirima, 2008). Garfinkel (1991) explains that thinner women are idealized because thinness connotes both goodness and attractiveness.

Several previous studies suggest a positive relationship between thin-ideal internalization and attitudes toward weight and eating among adolescent girls (e.g., Cusumano & Thompson, 2001; Wardle & Watters, 2004). One of the few studies on the relationship between thin-ideal internalization and drive for thinness among adolescents in Japan reported that the ideal body shape for the majority of junior high school students is tall and thin (Furukawa, 1993). This report implies that thin-ideal internalization influences drive for thinness in Japanese adolescents, and we felt it important to further examine this relationship.

Sociocultural Theory

In the sociocultural theory, it has been asserted that media, family members, and peers deliver messages on acceptable physical beauty and convey pressure to be thin to women. Consequently, women get to internalize a thin-ideal which is culturally determined (Cusumano & Thompson, 1997; Lavin & Cash, 2001; Stice, 1994), and, similarly, children adopt the thin-ideal upheld by society as well (Hill, Weaver, & Blundell, 1990; Mukai, 1998).

Although a great deal of research has addressed familial and peer influences on the development of body image (Phares et al., 2004), it has been reported that parents are particularly important sociocultural agents for their children during adolescence (Rodgers, Faure, & Chabrol, 2009; Smolak, Levin, & Thompson, 2001; Stice, Scupak-Neuberg, Shaw, & Stein, 1994). Parents have attitudes toward their own and their children's bodies and body shapes on the basis of the thin-ideal that they

have already internalized. These attitudes influence children's body dissatisfaction, drive for thinness, and dieting behaviors. In other words, parents send their children messages concerning body shape (Rodgers, Paxton et al., 2009), and it is thought that parents' thin-ideal promotes children's internalization of a preference for body shapes approved by society.

The Influences of Parents' Attitudes and behaviors on Children's Drive for Thinness and Dieting Behaviors

The influence parents have on their children's drive for thinness and dieting has received attention from scholars. Compared to fathers, mothers' attitudes or behaviors concerning weight and body shape have a stronger influence on children's drive for thinness and dieting behaviors (Smolak, Levine, & Schermer, 1999; Wertheim, Mee, & Paxton, 1999). For example, Rodgers, Paxton et al., (2009) surveyed high school students and their parents and reported that mothers' comments concerning children's body shapes were more predictive of daughters' drive for thinness than comments from fathers. In addition, most surveys that focused solely on the mothers' influence revealed that maternal attitudes toward their own bodies and their children's bodies affected children's attitudes toward their own bodies (Hill et al., 1990; Mukai & McCloskey, 1996).

Thus, parents' attitudes and behaviors, more specifically mothers', seem to play an important role in the development of a thin ideal in children. The present study placed particular emphasis on mothers for the following reasons: First, based on the previous findings described above, we reasoned that mothers tend to be more influential than fathers in terms of their children's body image. Second, since women are more likely than men to try to be thin and engage in dieting (National Institute of Health and Nutrition, 2007), we conjectured that behaviors related to their own body shapes, such as dieting, would occur more frequently in mothers than fathers.

In line with the sociocultural theory, mothers appear to interact with their children on the basis of the idea of goodness of thinness. We speculated that mothers' thin-ideal internalization determines their own dieting behaviors and their attitudes toward their children's bodies. For instance, Stice, Agras, and Hammer (1999) found that mothers who strove to be thin thought that being thin was required in order to be accepted by society.

When it comes to children, research suggests that mothers' thin-ideal which has already internalized encourages children's drive for thinness and dieting behaviors, both through the mothers' own dieting and their expression of attitudes and behaviors, such as comments that pressure children to be thin. Considering that children's drive for thinness and dieting behaviors

were found to be related to their thin-ideal internalization, we speculate that mothers' thin-ideal internalization promotes thin-ideal internalization in their children; mothers express attitudes and behaviors which are perceived by their children, and this ultimately promotes their own drive for thinness and dieting behaviors. Yet, few studies address how a mother's thin-ideal internalization alone influences her children's thin-ideal internalization. Assuming that a sociocultural explanation applies to adolescents as well as adults, we hypothesized that a mother's thin-ideal internalization determines how she interacts with her children regarding body shapes and dieting behaviors. Furthermore, we supposed that mothers function as sociocultural agents that communicate messages about the thin-ideal to their children, and that body image during adolescence may already be impacted by sociocultural factors.

Gender Differences in Thin-Ideal

The present study was designed to explore gender differences in thin-ideal internalization among early adolescents. According to the sociocultural perspective, physical appearance remains an important part of gender roles and identity among women (Asano, 1997; Baba, 1997). Indeed, Mukai (1998) claimed that the thin-ideal was included in a list of traditional gender roles, such as beauty. Previous studies showed that women's gender role endorsement was related to thin-ideal internalization and dieting behaviors (Stice et al., 1994). Furthermore, the thin-ideal seems to be primarily applied to women across cultures. Cusumano and Thompson, (2001) argued that although males are also influenced by the thin-ideal, females are influenced more. This is certainly the case in Japan (Moroi & Kokirima, 2008). In several previous studies (Baker, Wiseman, & Brownell, 2000; Rodgers, Faure et al., 2009), gender differences in terms of maternal influence were observed, such that girls were

more susceptible to their mothers' behaviors and comments than boys. For instance, in their study of high school students, Rodgers, Faure et al., (2009) reported that, compared to boys, girls were more influenced by their mothers' comments regarding their weight, body shape and the importance of physical appearance.

Accordingly, we hypothesized from the outset that mothers' thin-ideal internalization affects the thin-ideal internalization and subsequent behavior of daughters more than sons. Thus, we looked for gender differences in the way that mothers' thin-ideal influences children's thin-ideal internalization, drive for thinness, and dieting behaviors.

The Present Study

The purpose of the present study was to examine gender differences in the impact of mothers' thin-ideal internalization on children's thin-ideal internalization, dieting, and desire to be thin. Based on previous findings that pressure from mothers influences body shape, we hypothesized that mothers' thin-ideal internalization would affect their children's thin-ideal internalization via their attitudes and behaviors (Figure 1).

First, we hypothesized that the magnitude of the mothers' internalization would increase her attitudes and behaviors about body shape and dieting toward her children, and then these attitudes and behaviors would facilitate children's thin-ideal internalization, and in turn children's drive for thinness and engagement in dieting behaviors. Second, we assumed that the magnitude of the mothers' thin-ideal internalization would facilitate the children's perception of mothers' dieting behaviors, and would subsequently influence children's dieting behaviors. Therefore, with the findings of Baker et al., (2000) in mind, we examined children's perceptions of their mothers' behaviors and attitudes, and hypothesized that the attitudes and behaviors children actually perceive

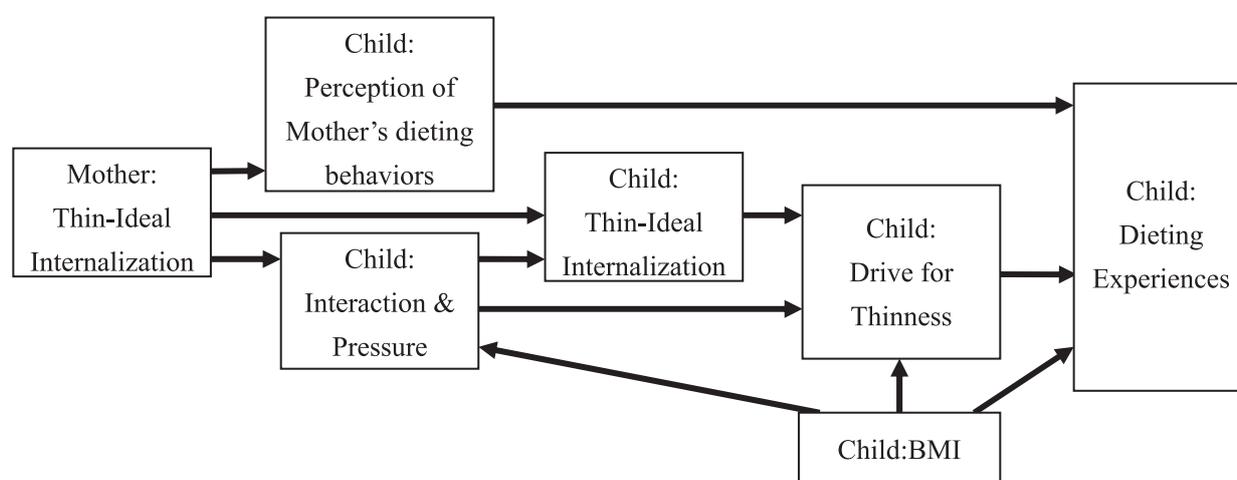


Figure 1. Model of the influence of mother's thin-ideal internalization on child's thin-ideal internalization, drive for thinness, and dieting experience.

would be more influential than the actions and communications reported by mothers alone. Third, we hypothesized that the magnitude of thin-ideal internalization in mothers would be directly related to thin-ideal internalization in their children. Japanese children may be particularly prone to internalizing parental values, even those that are not directly taught (Nakamura, 1997).

Our model also involves pathways from children's Body Mass Index scores (a measure of body shape) to mothers' pressure to be thin, children's drive for thinness, and dieting behaviors, since previous studies have shown that actual body weight influences drive for thinness and dieting behaviors (Stice, 2002; Thelen & Cormier, 1995). Finally, we anticipated gender differences, such that mothers' thin-ideal internalization would impact daughters more than sons.

Method

Participants and Procedures

An anonymous survey was conducted with 352 seventh through ninth grade students at a public junior high school in the greater Tokyo area and their mothers. The students' questionnaires were completed during morning assembly. Packets with questionnaires, information sheets about the study, and return envelopes were delivered to mothers by their children. Mothers returned their completed questionnaires by postal mail. We obtained data from 351 students (173 boys, 178 girls; 99.7% return rate) and 113 mothers (47 mothers of boys, 66 mothers of girls; 32.1% return rate). Responses from each mother were matched with those of her child.

Mothers' Instruments

Thin-Ideal internalization. We assessed mother's thin-ideal internalization using the Japanese version (Saito, 2004) of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; Heinberg, Thompson, & Stormer, 1995). The SATAQ was originally developed in order to measure the degree to which women recognize and accept thinness as a standard of beauty in society. It consists of 14 items in two subscales, "awareness/acknowledgment" of the importance placed on beauty by society, and "internalization/acceptance" of these beauty standards. Heinberg et al., (1995) reported alphas of .71 for "awareness/acknowledgment" and .88 for "internalization/acceptance," indicating acceptable internal consistency. They also documented evidence of good construct validity by showing significant positive correlations between SATAQ scores and measures of body image distortion and eating disorders (Heinberg et al., 1995). The present study used a translated version of SATAQ involving 10 items with an alpha coefficient of .83. Details of factor analyses are reported elsewhere

(Yamazaki, 2008). The participants were asked to rate to what extent they agreed with each statement on a 5-point scale (1 = does not apply at all; 5 = very much applies). Higher scores indicate greater internalization of the thin-ideal.

Child's Body Shape. We asked mothers to give information about the height and weight of their children, because we considered that children would not wish to disclose their weight. Based on this information, we computed the child's BMI (Body Mass Index) to estimate the child's body shape. A higher BMI value indicates a more rounded body shape.

Children's Instruments

Drive for thinness. Drive for thinness was measured by a single item, "Do you want to lose weight?" on a 5-point scale (1 = I don't want to lose weight at all; 5 = I very much want to lose weight). A higher score indicates a stronger drive for thinness.

Children's thin-ideal internalization. The Japanese version of the SATAQ (Saito, 2004) was adapted to measure the magnitude of a child's thin-ideal internalization. Since the original SATAQ targeted only women, we changed all references to "women" in the original questionnaire to "people" for the purposes of our study. Children were asked to rate to what extent they agreed with each statement on a 5-point scale (1 = does not apply at all; 5 = very much applies).

Dieting experience. The frequency of dieting behavior was assessed using a single item, "Have you ever done anything to lose weight?" on a 4-point scale (1 = never; 4 = I'm constantly doing something to lose weight). A higher score is indicative of more frequent dieting.

Maternal influences in dieting. The Maternal Influence Scale (MFS; Mukai, 1996) was translated into Japanese to measure pressure from mothers about body shape and dieting. The MFS consists of two subscales measuring "mutual monitoring and modeling" and "perceived expectations and pressure." Respondents assessed frequency of communication on a 4-point scale (1 = not at all; 4 = very often). A higher score indicates that a child frequently communicates with his or her mother about body shape and dieting. In a study of seventh through eleventh graders, Mukai (1996) reported an alpha of .83 for the MFS, indicating good internal consistency for the entire scale.

Perceived dieting behaviors of mothers. We assessed perceived magnitude of the mother's dieting behaviors by a question asking whether the respondent thought his or her mother had ever dieted before. The respondent rated the mother's dieting behaviors on the following scale: 1 = I don't think she has ever dieted; 2 = I think she has dieted just once before; 3 = I think she has dieted two or more times; 4 = I think she is constantly dieting; 5 = I don't know. "I don't know" could be interpreted as

not recognizing the mother's dieting behaviors. Higher scores are indicative of a perception that the mother engages in more frequent dieting behaviors.

Results

The primary goal was to explore gender differences in the relationships between mothers' thin-ideal internalization, children's thin-ideal internalization, and drive for thinness. To this end, we performed simultaneous multi-group path analyses that allowed us to examine gender differences in our hypothesized model. Data were analyzed using SPSS 16 and Amos 16.

Factor Structures

Prior to testing our hypotheses, we first examined factor structures within MFS, because MFS items in our study were translations of the original English items. Furthermore, we conducted factor analyses to determine whether the Child's SATAQ had the same structure as the Mother's SATAQ in order to examine the relationships between mother and child in terms of the magnitude of thin-ideal internalization. Data from all 351 seventh through ninth grade students were analyzed for the children's scales.

MFS. Factor analyses of the MFS extracted a two-factor structure. The factor loadings in our study were different from those in the original survey (Mukai, 1996). Cronbach's alphas were .81 for a sub-scale made by Factor 1, and .64 for a sub-scale made by Factor 2. Because a minimum alpha of .70 is expected for reasonable internal consistency (Kambara, 1998), our results indicate low internal consistency for the second factor. Therefore, we only analyzed the scale made by Factor 1. The final results of the factor analysis are shown in Table 1. Factor 1 was named "MFS Interaction and Pressure" because items loading on Factor 1 referred to interactions with mothers concerning body shape and pressure that a mother put on her child to lose weight.

Child's SATAQ. Because the purpose of this study was to investigate the relationship between mother and child in terms of the magnitude of thin-ideal internalization, we conducted factor analyses on the Child's SATAQ to determine whether it had the same factor structure as the Mother's SATAQ reported in a previous study (Yamazaki, 2008). A series of principal axis factor analyses with promax rotation extracted the same factor structure as previously reported for the Mother's SATAQ. The final results of the factor analyses are shown in Table 2.

Table 1. Summary of Factor Loadings of MFS "Interaction and Pressure"

	Factor loadings <i>N</i> = 351
How often have you been encouraged to diet by your mother?	.85
Currently, how overweight does your mother think you are?	.91
How many times has your mother suggested that you go on a diet with her?	.61
How often does your mother think that you eat too much?	.65
How often does your mother bring up the topic of dieting in conversations with you?	.40
Coefficient alpha (α)	.81

Table 2. Summary of Factor Loadings for Children's SATAQ

	Factor loadings <i>N</i> = 351
Photographs of thin people make me wish that I were thin.	.81
Music videos that show thin people make me wish that I were thin.	.83
I tend to compare my body to people in magazines and on TV.	.76
I often read magazines and compare my appearance to the models.	.83
I wish I looked like a swimsuit model.	.83
People who appear in TV shows and movies project the type of appearance that I see as my goal.	.71
People think that the thinner you are, the better you look in clothes.	.58
I believe that clothes look better on thin models.	.62
In today's society, it's important to always look attractive.	.59
It's important for people to work hard on their figures if they want to succeed in today's culture.	.54
Coefficient alpha (α)	.91

Descriptive Statistics

We performed t-tests to examine gender differences in all variables. The results are presented in Table 3. Girls scored significantly higher than boys on drive for thinness ($t = 8.44, p < .001$), dieting experiences ($t = 5.99, p < .001$), perceived mother's dieting behaviors ($t = 2.43, p < .05$), MFS Interaction and Pressure ($t = 4.81, p < .001$), and thin-ideal internalization ($t = 2.87, p < .01$). There were no gender differences on the BMI ($t = 0.16, n.s.$) and Mothers' SATAQ ($t = 0.71, n.s.$).

Influence of Mother's Thin-Ideal Internalization on Child's Thin-Ideal Internalization, Child's Drive for Thinness, and Child's Dieting Experience

The primary purpose of this study was to investigate gender differences in the way mothers' thin-ideal internalization influences children's thin-ideal internalization, children's drive for thinness, and children's dieting experiences. In order to test gender differences, we performed a series of simultaneous multi-group path analyses on 113 mother-child pairs (47 mother-boy; 66 mother-girl) extracted from the entire subject group of 351 students. The correlation matrix that served as the basis for the path analyses is presented in Table 4.

First, we performed simultaneous multi-group path analyses to test our hypothesized model (Figure 1). Exogenous variables in our model were mothers' thin-ideal internalization and children's BMI. Endogenous variables included children's perceived interaction with mothers about body shape and pressure from mothers to be thin, children's perception of their mothers' dieting behaviors, children's thin-ideal internalization, children's drive for thinness, and children's dieting experiences. It was hypothesized that children's perception of interactions and pressure, children's thin-ideal internalization, and perception of their mothers' dieting behaviors mediate a link between mothers' thin-ideal internalization and children's drive for thinness and dieting behavior. After the initial path analysis, we modified our hypothesized model by eliminating paths that had non-significant coefficients for both boys and girls. We then performed simultaneous multi-group path analyses with this modified model. Results with the modified model are shown in Figure 2 for girls and Figure 3 for boys. Fit indices of our modified model demonstrate a fair fit to the data: $\chi^2(14) = 18.667 (n.s.)$, GFI = .949, RMSEA = .055 and AIC = 74.667, suggesting that the structure of our modified model was the same

Table 3. Means, Standard Deviations, and Gender Differences in Children's and Mothers' Variables

	α	Total (N = 351)		Girls (N = 178)		Boys (N = 173)		t-value
		M	SD	M	SD	M	SD	
Children's variables								
Drive for thinness	—	3.36	1.33	3.90	1.14	2.80	1.28	8.44**
BMI	—	19.59	2.71	19.62	2.81	19.54	2.58	0.16
Dieting experience	—	1.84	1.05	2.15	1.11	1.51	0.88	5.99**
Perceived mother's dieting behavior	—	1.71	1.02	1.84	1.05	1.58	0.98	2.43*
MFS: Interaction and pressure	.81	1.63	0.70	1.80	0.72	1.45	0.62	4.81**
Children's SATAQ: Thin-ideal internalization	.91	2.67	0.95	3.14	0.86	2.21	0.80	2.87**
Mothers' variables								
Mothers' SATAQ: Thin-ideal internalization	.79	2.84	0.71	2.89	0.66	2.66	0.77	0.71

Note: * $p < .05$; ** $p < .01$

Table 4. Seventh through Ninth Graders: Correlations between Child's Drive for Thinness, Child's BMI, Child's Dieting Experience, Perceived Mother's Dieting Behavior, MFS (Interaction and pressure), C-SATAQ, SATAQ

	1	2	3	4	5	6	7
1. Child's drive for thinness	—	.44**	.53**	.25**	.56**	.59**	.02
2. BMI	.66**	—	.36**	.00	.57**	.08	-.27*
3. Child's dieting experience	.48**	.39**	—	.22**	.43**	.53**	-.00
4. Child's perceived mother's dieting	.07	.09	.12	—	.44**	.25**	.36**
5. MFS: Interaction and pressure	.41**	.55**	.43**	.17*	—	.51**	.12
6. C-SATAQ	.20**	.18	.18*	.04	.30**	—	.27
7. SATAQ	.00	.08	.11	-.08	.13	.37**	—

Note 1: The gray cells show the correlations for girls, and white cells show the correlations for boys.

Note 2: * $p < .05$; ** $p < .01$.

across gender. For GFI, the closer to 1.00 the values become, the better the model fits the data, with values above .90 indicating the model is acceptable (Hu & Bentler, 1998). For RMSEA, the closer the value is to 0.00, the better the model fits the data, with a value below .05 indicating a good fit and a range of .05 to .08 indicating a fair fit (Hu & Bentler, 1998). AIC (Akaike Information Criterion) is suitable for comparing among models. The smaller the AIC value, the better the model fits data (Toyota, 1992).

Next, chi-square differences were used to examine statistical differences in parameters across genders. First, we tested the constrained model in which all parameters were constrained to be equal for boys and girls, and then we tested the non-constrained model that had no equality constraints. The test statistics for this model are displayed in Table 5. Second, chi-square values for this constrained model were compared to those of the non-constrained model. Since the change in chi-square was significant ($\Delta \chi^2(8) = 21.286, p < .05$), we concluded

that our model had metric noninvariance across gender, implying gender differences in the parameters of our modified model (Byrne, 2010).

Given findings of noninvariance at this level, we proceeded to test which parameters in the model were different. We tested two different constrained models. In the first model, parameter constraints were guided by our hypotheses; in the second model, parameters were constrained on the basis of the results of pairwise parameter comparisons.

We hypothesized that there would be gender differences in the routes from mothers' thin-ideal internalization to children's perception of interaction with and pressure from mothers, and to children's thin-ideal internalization, and the route from children's thin-ideal internalization to children's drive for thinness. We performed simultaneous multi-group path analyses with a new model, referred to as the first constrained model, with no constraints for these three parameters.

Pairwise parameter comparisons showed that

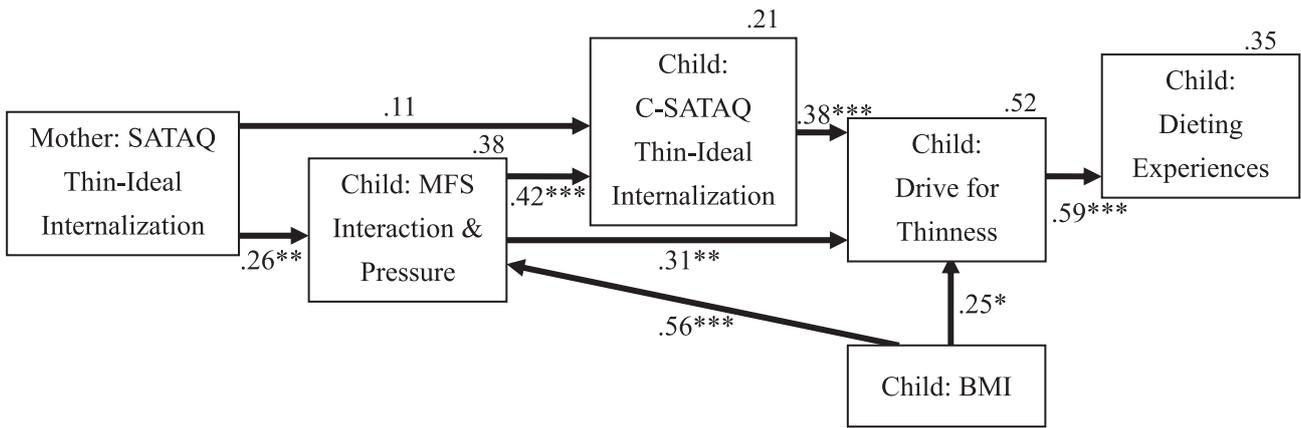


Figure 2. Path diagram of the influence of mother's thin-ideal internalization on child's drive for thinness and dieting experience (girls).
 Note 1: "Mother" stands for the mother's variables. "Child" refers to child's variables.
 Note 2: * $p < .05$; ** $p < .01$; *** $p < .001$.

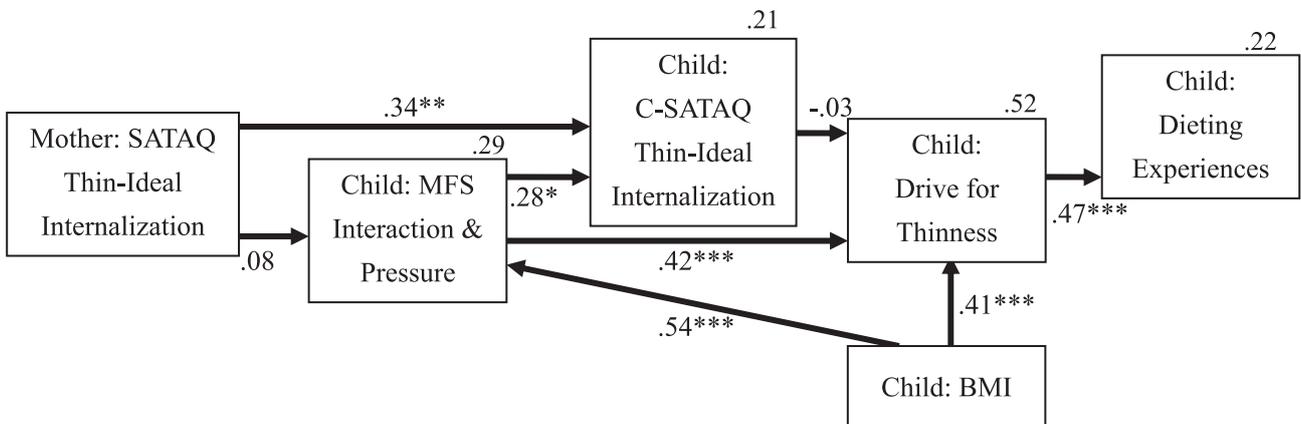


Figure 3. Path diagram of the influence of mother's thin-ideal internalization on child's drive for thinness and dieting experience (boys).
 Note 1: "Mother" stands for the mother's variables. "Child" refers to child's variables.
 Note 2: * $p < .05$; ** $p < .01$; *** $p < .001$.

differences in path coefficients from children's thin-ideal internalization to children's drive for thinness ($z = 2.33$) and from children's drive for thinness to children's dieting experiences ($z = 2.24$) were significant at $p < .05$, and the differences in path coefficients from mothers' thin-ideal internalization to children's perception of the interaction with mothers and pressure from mothers ($z = 1.79$) and from children's perception of the interaction with and pressure from mothers to children's drive for thinness ($z = 1.68$) were significant at a $p < .10$. Based on these results, we tested a second model, referred to as the second constrained model, in which the values of all parameters except the four mentioned above were constrained.

The test statistics for these models are shown in Table 5. When we compared the goodness of fit indices for the four models, the second constrained model had the smallest RMSEA and AIC values than the other models. Thus, we concluded that the strength of the following relationships differed between boys and girls: the influence of mothers' thin-ideal internalization on children's perception of interaction and pressure concerning body shape, the influence of children's perception of interaction and pressure on their drive for thinness, the influence of children's thin-ideal internalization on their drive for thinness, and the influence of children's drive for thinness on their dieting experiences.

Discussion

The primary purpose of this study was to explore gender differences in the influence of mothers' thin-ideal internalization on children's thin-ideal internalization, drive for thinness and dieting experiences. Although our hypothesized model was supported for girls and boys considered together, statistically significant gender differences were found in the strength of mothers' influence on children's thin-ideal internalization, which suggests that processes of internalization based on maternal influence differ according to gender. Despite several limitations, such as low return rate from mothers and limited sampling from the greater Tokyo region only, the findings of this study support our hypotheses that there are gender differences in how a mother's internalization of the thin-ideal influences her child's own internalization and drive for thinness.

First, we hypothesized that increased thin-ideal internalization by a mother leads to an increase in a child's perceived interaction with their mother about body shape and pressure from the mother to be thin, which in turn leads to greater thin-ideal internalization and a stronger drive for thinness. Our results showed that these relationships are different between girls and boys. For girls, we found a significant route from the mother's thin-ideal internalization to the child's perceived interaction with their mother and pressure from the mother. This route was not significant for boys. This gender difference implies that a mother may interact with and put pressure on her daughter based on her own belief that women should be thin. This also suggests that mothers tend to think that the thin-ideal mainly applies to women, and therefore do not think it is necessary to convey the thin-ideal to their sons. In a study of high school female students, Makino (2006) reported that students' endorsement of "thin culture" was encouraged by messages from close family. Our findings indicate that, in terms of messages from mothers, this endorsement begins in early adolescence.

It is also intriguing that there was a gender difference in the relationship between children's thin-ideal internalization and their drive for thinness. Specifically, thin-ideal internalization significantly influenced drive for thinness in girls, but not boys. This is consistent with the results of a survey of junior high school students in China, where no significant relationship was found between thin-ideal internalization and body dissatisfaction in boys (Chen et al., 2007). It was suggested that boys are likely to believe that the thin-ideal mainly applies to women in China and Japan, and potentially in other countries as well. Furthermore, the influence of perceived maternal interactions on a drive for thinness was stronger in boys than girls, suggesting that maternal behaviors concerning body shapes and dieting affect thin-ideal internalization rather than drive for thinness among girls.

We assumed that the child's perception of his or her mother's dieting behavior is related to a child's dieting experience. Contrary to our hypothesis, this relationship was not significant for either boys or girls. Likewise, MacBrayer, McCarthy, Demos, & Simmons (2001) found that junior high school students did not imitate their mothers' snacking behavior. However, other studies have

Table 5. *The Test Statistics for Four Models.*

	Comparative model	χ^2	<i>df</i>	$\Delta\chi^2$	Δdf	<i>p</i>	GFI	RMSEA	AIC
1. No equality constrained model	—	18.667	14	—	—	—	.949	.055	74.667
2. Constrained model	2 versus 1	39.953	22	21.286	8	.05	.900	.086	79.953
3. First constrained model	3 versus 1	34.657	19	15.99	5	.05	.911	.086	80.657
4. Second constrained model	4 versus 1	23.049	18	4.382	4	.05	.971	.050	71.049

found relationships between mothers' and children's eating behaviors, particularly among children eight years old and younger (see Hill et al., 1990; Jacobi, Agras, & Hammer, 2004; Stice et al., 1999). Taken together, these findings imply that, compared to the teenagers we studied, younger children are more likely to imitate their mothers' eating behaviors.

We conclude that a mother's thin-ideal internalization influences her children's thin-ideal internalization, and that there are gender differences in the relationships between mothers' thin-ideal internalization, children's thin-ideal internalization, children's drive for thinness, and dieting experiences. Of course, mothers vary greatly in their direct and indirect communication with their children. However, our results suggest that the perception of sociocultural pressure to be thinner differs according to gender. Especially for daughters, mothers appear to function as agents for conveying information about the body shape that is acceptable in society.

According to our findings, mothers communicate ideas about weight and body shape to daughters more so than to sons and pressure daughters to be thin on the basis of a thin-ideal that they have already internalized. In this way, mothers may come to facilitate their daughters' thin-ideal internalization. We believe that mothers consider that they have to inform their daughters of societal standards for attractive body shape. As mentioned earlier, for women, physical attractiveness is the most important gender role, and also is related to societal success (Lavin & Cash, 2000; Stice, 1994). Increasingly, the prototype for attractive body shape has become thinner (Silverstein, Peterson, & Perdue, 1986). For example, surveying the relationships between body image and self among African-American women, Harris (1995) found that socially competent women with a low body mass tended to elicit approval through social and interpersonal interactions. Our results demonstrate this previous finding, that is, young girls in Japan, in part through the influence of their mothers, perceive rewards associated with being thin, and engage in dieting behaviors to gain those rewards.

In contrast, mothers' thin-ideal internalization did not tie to boys' perception of interaction with mothers and pressure from mothers. This suggests that mothers may not believe that sons have to be thin in order to be attractive, or that physical attractiveness is not important for male gender roles and success. It seems that boys themselves do not believe that men need to be thin in order to be accepted by society, since thin-ideal internalization was not tied to drive for thinness among boys.

Based on these findings, we conjecture that, with the aim of having daughters who are happy in society, mothers implicitly inculcate their daughters with ideas about the social value placed on appearance. It has been

argued that woman's success requires that her appearance is attractive, and that the relationships between woman's success and her appearance is related to psychological health problem, such as eating disturbance. (Striegel-Moore et al., 1986). Stice (1994) noted that thin-ideal internalization facilitates women's obsession with their body shapes in his review study on relationships between appearance and success among women. In addition, he asserted that the connection of thin-ideal with the importance of appearance in female gender roles drives women to be thin and engage in dieting. It has been showed that the pressure mothers place on their daughters is a risk factor of eating disorders in daughters in previous studies (Davis, Blackmore, Katzman, & Fox, 2005; Paxton, Schutz, Wertheim, & Muir, 1999). Accordingly, we consider the mother-daughter transfer of thin-ideal internalization to be a risk factor for eating disorders that are prevalent among young women in Japan.

The present study demonstrated how mothers influence the thin-ideal in their children. However, the sociocultural theory of the thin-ideal involves strong influences beyond parents as well. Given the recent increase in the number of fashion magazines targeting young adolescents (Yano Research, 2002), media have an increasingly stronger influence on children's attitudes toward body shapes. For example, in a survey of the factors influencing thin-ideal internalization in young adolescent girls, the most powerful factor was media exposure (Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2008). Few studies have delineated the influence of the media on Japanese adolescents. Future studies should examine the influence of a variety of sociocultural factors on body image and dieting in order to better explain why the thinness trend continues to grow in Japan.

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