

## The sociocultural model of eating disorder development: Application to a Guatemalan sample <sup>☆</sup>

Jillon S. Vander Wal <sup>a,\*</sup>, Judith L. Gibbons <sup>a,1</sup>, Maria del Pilar Grazioso <sup>b,2</sup>

<sup>a</sup> Saint Louis University, Department of Psychology, 221 North Grand Blvd, St. Louis MO, 63103, USA

<sup>b</sup> Departamento de Psicología, Universidad del Valle de Guatemala, 18 Avenida 11-95 Zona 15. Vista Hermosa III, Guatemala, Guatemala

Received 30 May 2007; received in revised form 8 October 2007; accepted 26 October 2007

---

### Abstract

Exposure to Western ideals of appearance along with rapid societal change appears to be salient risk factors for eating disorder development. According to the sociocultural model, internalization of the thin ideal leads to body dissatisfaction and subsequent negative affect and dieting behaviors which increase the risk for eating disorder development. An expanded version of the sociocultural model was examined among an economically stratified sample of 347 girls in grades 5 and 6 from Guatemala City. Questionnaires used to measure disturbed eating attitudes and behaviors, body dissatisfaction, social sensitivity, and internalization of the thin ideal were administered and BMI was calculated following measurement of height and weight. Path analyses showed that the expanded sociocultural model was an excellent fit to the data. Both elevated adiposity and social sensitivity led to increased body dissatisfaction and thin ideal internalization. Thin ideal internalization led to body dissatisfaction and to disturbed eating attitudes and behaviors. Results suggest that developing countries are not immune to the influence of sociocultural risk factors for eating disorders.

© 2007 Elsevier Ltd. All rights reserved.

*Keywords:* Eating disorders; Body image; Culture; Guatemala; Children; Adiposity; Social anxiety

---

### 1. Introduction

Risk factors for eating disorders, ranging from an ideographic to a cultural level have been identified. Risk factors at the cultural level include rapid economic development, industrialization, urbanization, and modernization as well as accompanying societal level change such as shifting gender roles, exposure to the cultural practices of other societies, and varying societal norms. Perhaps the most widely researched of these risk factors is exposure to the so-called Western ideal of thinness.

---

<sup>☆</sup> Note. Portions of the present data were presented at the 2007th Annual Meeting of the Society for Cross-Cultural Research, San Antonio, TX.

\* Corresponding author. Tel.: +1 314 977 2282; fax: +1 314 977 1006.

*E-mail addresses:* [jillonv@yahoo.com](mailto:jillonv@yahoo.com) (J.S. Vander Wal), [gibbonsjl@slu.edu](mailto:gibbonsjl@slu.edu) (J.L. Gibbons), [mpgderod@uvg.edu.gt](mailto:mpgderod@uvg.edu.gt) (M. del Pilar Grazioso).

<sup>1</sup> Tel.: +1 314 977 2295; fax: +1 314 977 1006.

<sup>2</sup> Tel.: +502 23690791x573; fax: +502 23695233.

Documentation of the association between exposure to the Western ideal of thinness and eating disorder development is available among both developing and developed countries. For instance, awareness and internalization of Western appearance norms were associated with the endorsement of eating disorder symptoms among international Japanese and Chinese students studying in the United States (Stark-Wroblewski, Yanico, & Lupe, 2005). In Fiji, the prevalence of disturbed eating attitudes and behaviors among school girls dramatically increased following the introduction of television, presumably due to exposure to the thin ideal (Becker, Burwell, Gilman, Herzog, & Hamburg, 2002). Research in Mexico supported a model in which pressure to be thin, internalization of the thin ideal, and excess weight increased the risk of body dissatisfaction which in turn was associated with eating disorder development (Unikel, Aguilar, & Gomez-Peresmitre, 2005). Internalization of the thin ideal was found to mediate the relationship between awareness of the thin ideal and body dissatisfaction among women in Mexico (Warren, Gleaves, Cepeda-Benito, Fernandez, & Rodriguez-Ruiz, 2005). Moreover, three meta-analyses of sociocultural influences on body image in the United States provide correlational, experimental, and longitudinal evidence of the relationship between exposure to, awareness of, pressure to attain, and internalization of the thin ideal and body dissatisfaction (Cafri, Yamamiya, Brannick, & Thompson, 2005; Groesz, Levine, & Murnen, 2002; Stice, 2002).

The pathway by which exposure to the thin ideal leads to eating disorder development is depicted by the sociocultural or dual pathway model (Stice & Agras, 1998). According to the model, internalization of the thin ideal leads to body dissatisfaction which in turn leads to negative affect and dieting behaviors which increase the risk for eating disorder symptomatology, specifically bulimic pathology. The gender additive model of female adolescent depression further suggests that elevated adiposity may precede perceived pressure to attain the thin ideal as well as body dissatisfaction (Stice & Bearman, 2001). Of note, it may not be adiposity per se that is associated with body dissatisfaction, but rather, elevated adiposity in comparison to one's peers. In countries with relatively low rates of obesity, girls whose levels of adiposity, even if quite acceptable or even healthy, may be at risk.

Although the sociocultural model captures the pathways by which sociocultural factors promote eating disorder development, the model does not address the question as to which girls are most likely to internalize the thin ideal, a question first posed by Striegel-Moore, Silberstein, and Rodin (1986). Social sensitivity, or an unwarranted and excessive awareness and sensitivity to the feelings and actions of others, is one candidate (Boyce & Parker, 1989). According to Atlas (1994), social sensitivity involves an increased likelihood of perceiving criticism and of experiencing a negative emotive response to perceived criticism. Among Caucasian women, social sensitivity has been shown to be prospectively related to the manifestation of bulimic symptomatology (Steiger, Gauvin, Jabalpurwala, Seguin, & Stotland, 1999). Among African American, Caucasian, and Hispanic girls in the United States, social sensitivity is a strong correlate of body dissatisfaction as well as disturbed eating attitudes and behaviors (Vander Wal & Thelen, 2000; Vander Wal & Thomas, 2004).

Because of its rapid urbanization (United Nations Development Programme, 2005), increased female employment (International Labor Organization Bureau of Statistics, 2007), and exposure to the Western ideal of thinness, Guatemala may provide a risky environment for the development or perpetuation of eating disorders despite traditional positive attitudes toward heavier body shapes (Franko & Herrera, 1997). In fact, a recent study revealed that adolescents living in Guatemala City reported preferences for thin body images and saw thin silhouettes as both healthy and attractive (McArthur, Holbert, & Peña, 2005). Therefore, the purpose of the present study was to examine the fit of an expanded version of the sociocultural model among early adolescent girls most likely to be affected by these changes.

## 2. Methods

### 2.1. Participants

In Guatemala City, girls were recruited from three different kinds of single-sex schools, representing different socioeconomic levels. These included (1) a private school that required the payment of substantial tuition, (2) a private school that charged lower tuition, and (3) a public school for which attendance was free. As compulsory education concludes following the sixth grade, girls from grades 5 and 6 were identified for recruitment.

### 2.2. Measures

#### 2.2.1. Demographic characteristics

Girls' demographic characteristics, including age, grade, ethnic background, and hours of television watched per day were obtained from responses to a questionnaire. Because the girls were unlikely to have access to information about annual household

income, girls were asked about family ownership of material goods such as appliances as a proxy of socioeconomic status. Girls' heights and weights were measured by trained research assistants following the questionnaire session. Body mass index, an indicator of childhood adiposity, was calculated from the equation, weight in kg/height in  $m^2$ . Girls were then classified as average weight, overweight, or obese (weight classification) according to age and gender-based norms (U.S. Department of Health and Human Services, 2002). As the appropriateness of these norms for use among Guatemalan girls was uncertain, different weight classification schemes were used, such as quartiles per age group. These different approaches made no difference in the pattern of results obtained.

#### 2.2.2. *The Children's Eating Attitude Test (ChEAT; Maloney, McGuire, Daniels, & Specker, 1989)*

The ChEAT is a 26-item measure of children's eating attitudes and dieting behaviors. Among adolescent girls, the ChEAT has internal consistency coefficients ranging from  $\alpha = .87$  to  $.89$  (Maloney et al., 1989) and a 3-week test–retest reliability coefficient of  $r = .81$  has been reported (Maloney, McGuire, & Daniels, 1988). The ChEAT has been used previously among Hispanic girls in the United States (Vander Wal & Thomas, 2004) with an alpha of  $.82$ . The alpha in the present study was  $.76$ .

The ChEAT was scored on a 5-point Likert scale with response options scored 3 (*always*), 2 (*very often*), 1 (*often*), 0 (*rarely*), and 0 (*never*). This scoring procedure is slightly different from that indicated by Maloney et al. (1989) in that the response option of *sometimes*, scored 0, was removed because pilot testing revealed that the girls could not differentiate between the response options of *sometimes* and *rarely*.

#### 2.2.3. *The Revised Body Esteem Scale for Children (BES-R; Mendelson & White, 1982; Mendelson & White, 1993–1994)*

The BES, a 20-item dichotomous-choice questionnaire, is designed to assess children's general affective evaluations of their bodies. A high score is indicative of body esteem, whereas a low score is indicative of body dissatisfaction. The authors report good internal consistency ( $\alpha = .88$ ) and concurrent validity with other measures of physical appearance. A two-week test–retest reliability coefficient of  $r = .90$  and an internal consistency coefficient of  $\alpha = .92$  were obtained in a study of predominantly Caucasian girls in grades 3 through 5 (Vander Wal & Thelen, 2000) and an alpha level of  $.86$  was obtained among Hispanic girls in the United States (Vander Wal & Thomas, 2004). An alpha of  $.91$  was obtained in the present study.

#### 2.2.4. *The Fear of Negative Evaluation Subscale of the Social Anxiety Scale for Children-Revised (FNE-R; LaGreca & Stone, 1993)*

The FNE-R is an 8-item measure of social sensitivity. Responses, measured on a 5-item Likert scale, indicate the level of distress generated by anticipations of negative evaluation. The Fear of Negative Evaluation Subscale Revised has shown good internal consistency ( $\alpha = .86$ ) and is correlated with related constructs (LaGreca & Stone, 1993). Use of the original version, which has 5 items in common with the revised version, resulted in an alpha of  $.81$  among Hispanic girls in the United States (Vander Wal & Thomas, 2004). In the present study, an alpha of  $.84$  was obtained.

#### 2.2.5. *The Multidimensional Media Influence Scale (MMIS; Cusumano & Thompson, 2001)*

The MMIS is an 11-item measure of media influence on body image including internalization, awareness, and pressure. A 3-point Likert scale is used. Coefficient alphas for the female portion of the scale development sample were  $.68$  for Pressure,  $.74$  for Awareness, and  $.92$  for Internalization. Moreover, all three subscales were significantly associated with body dissatisfaction. Coefficient alphas in the present study were  $.47$  for Awareness,  $.66$  for Pressure, and  $.83$  for Internalization. Because of unacceptably low alphas for Awareness and Pressure ( $< .70$ ; Nunnally & Bernstein, 1994), only the Internalization subscale was retained for further analysis.

### 2.3. *Procedures*

Three research assistants, bilingual residents of Guatemala City with a background in psychology, were trained in the administration of the questionnaires and in the measurement of height and weight. The measures were translated into Spanish from English, or in the case of the ChEAT and BES-R, adapted for local use of Spanish in Guatemala by a team of two bilingual persons. The translations were then checked for accuracy and appropriate reading level by the three bilingual research assistants. The assistants then piloted the measures with five girls in grades five and six to elicit their interpretations of the questions and consulted with the school administrators regarding the wording of the materials. As a result, the team rephrased some of the questions and assembled a standardized response list to commonly asked questions.

Institutional Review Board approval, formal permission from each school, parental consent, and child assent were obtained. Girls whose parents did not provide consent or who did not wish to participate were given a packet of puzzles and word games that appeared identical to the questionnaire packets. Girls did not sign or place any identifying information on the materials so that their participation would remain anonymous. The questions were read out loud by the research assistants to compensate for differences in reading ability and each girl was asked to indicate her answers on her papers. Girls were encouraged to ask questions about items that they did not understand. After the questionnaires were completed, height and weight were measured privately. While waiting, the girls removed outerwear, footwear, and personal items. Height was measured with the 214 Road Rod Portable Stadiometer® available from QuickMedical. Weight was measured with the Healthometer® Digital Battery Extra Wide Platform Scale available from Sunbeam Products Inc, model number HDR916-01.

## 2.4. Analyses

Path analyses, conducted with AMOS 6.0, were used to evaluate the fit of the models. Unlike multiple regression, path analysis enables one to estimate the size of the associations among the variables as well as to test whether the hypothesized model is consistent with the observed data. First, a goodness-of-fit chi-square was evaluated. A significant chi-square ( $p < .05$ ) generally indicates a poor fit, whereas a chi-square roughly equal to its degrees of freedom is evidence of a good fit. However, because the chi-square test can be influenced by factors other than the validity of the model (e.g. departures from multivariate normality, sample size, model complexity), other fit indices were used, including the Normed Fit Index (NFI; Bentler & Bonett, 1980), the Relative Fit Index (RFI; Bollen, 1986), the Incremental Fit Index (IFI; Bollen, 1989), the Tucker–Lewis coefficient also known as the Non-Normed Fit Index (TLI; Bentler & Bonett, 1980), the Comparative Fit Index (CFI; Bentler, 1990), and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993). Values greater than .90 on the NFI and values close to 1.0 on the RFI, IFI, TLI, and CFI indicate a good fit. On the RMSEA, values less than .08 indicate a reasonable fit and values less than .05 indicate a good fit.

## 3. Results

### 3.1. Preliminary analyses

Usable data were obtained from 88 girls from the expensive private school, 164 girls from the less expensive private school, and 85 girls from the public school (82% of those eligible) for a total of 337 participants. Nearly half (48.1%) were in grade 5, with the remainder in grade 6. Similarly, about half (55.8%) had reached puberty. The majority of the girls (91.6%) identified themselves as Ladina, an ethnic identity that in Guatemala is associated with a mixture of indigenous and European heritage, or simply means, “not indigenous.” The majority of the girls were also of average weight (58.5%). On average, girls watched 3.6 h of television per day ( $SD = 2.26$ ). Most girls were from dual parent families (77.0%), with the remainder from single mother (20.5%) and single father (2.4%) households. In most cases, mothers were employed outside the home (68.0%). Detailed sample characteristics are presented in Table 1.

Table 1  
Demographic characteristics

Variable	Type of school			F
	Expensive private school	Less expensive private school	Public school	
<i>Grade</i>				
5	40.9	49.4	52.9	2.73
6	49.4	50.6	47.1	
<i>Ethnicity</i>				
Ladina	82.8 <sup>a</sup>	96.6 <sup>b</sup>	90.4 <sup>b</sup>	32.00****
Mayan	1.1	.6	7.2	
Other	16.1	2.5	2.4	
<i>Weight classification</i>				
Under weight	1.1	1.2	2.4	12.35
Average weight	56.8	54.3	68.2	
Over weight	23.9	34.8	17.6	
Obese	18.2	9.8	11.8	
<i>Family type</i>				
Single mother	23.9	18.3	21.7	3.30
Single father	3.4	1.2	3.6	
Dual parents	72.7	80.5	74.7	
<i>Mother employed</i>				
Yes	80.4 <sup>a</sup>	70.8 <sup>a</sup>	28.0 <sup>b</sup>	22.73****
<i>Post pubertal</i>				
Yes	55.8	59.6	54.1	.78

Entries represent the percentage of participants in each category.

Note. \*\*\*\* $p < .0001$ . Values with differing superscripts are significantly different from each other.

In order to assess the quality of the sampling strategy, girls from the three types of schools were compared on demographic characteristics (Table 1). Girls from the three types of schools were comparable in terms of the proportions from each grade, parentage, maternal employment, and pubertal status. Significantly more girls from the expensive private school described themselves as neither Ladina nor Indigenous ( $p < .0001$ ). A trend was detected with regard to weight classification ( $p < .10$ ). Subsequent chi-square analyses showed that a significantly greater proportion of the girls from the two private schools were classified as overweight and obese (44.2%) than those in the public school (30.1%), ( $p < .05$ ). Finally, results showed that girls from the two private schools did not differ from one another on any of the socioeconomic indicators, (e.g. clothes dryer, home computer/laptop, vehicle, microwave, hot water, stove, electricity). However, girls from the expensive private school and from the less expensive private differed from those in the public school on every indicator except for television ownership.

Overall, girls endorsed high levels of eating pathology, as indicated by the following illustrative responses. Two hundred thirteen girls endorsed feeling scared about being overweight (62.3%) and 84 indicated that they had been dieting to lose weight (24.9%). Seventy-one endorsed having gone on eating binges during which they felt they might not be able to stop (21.1%). Four girls (1.2%) reported vomiting after eating to control weight. Overall, 124 girls (38.2%) scored above the cut-point on the ChEAT.

### 3.2. Model testing

According to the sociocultural theory of eating disorder development, internalization of the thin ideal leads to body dissatisfaction and negative affect which in turn lead to eating disorder development. Therefore, a mediation model in which body dissatisfaction served as the mediator between internalization of the thin ideal and disturbed eating attitudes and behaviors was tested. First, the conditions of mediation were assessed. The path coefficients between each of the constructs were found to be statistically significant. Next, as this was a zero-degree of freedom model, the regression coefficient of the path from internalization of the thin ideal to disturbed eating attitudes and behaviors was first constrained to a value of 1, then to a value of .5, and finally to a value of zero. The fit of each model was then compared. If reducing the value of the path from 1 to 0 resulted in an improved fit, mediation would be concluded. Results of the comparison showed a significant Chi-square when the path was constrained to a value of 1 (4.42,  $p < .05$ ), a non-significant Chi-square at the .5 level (2.27,  $p = ns$ ), and a significant Chi-square at a value of 0 (25.31,  $p < .0001$ ). The best model fit occurred when the path was constrained to a value of .7, ( $\chi^2 = .00$ ,  $p = .951$ ). Additional fit indices are presented in Table 2, Model 1. This pattern of results suggests the presence of both a direct and indirect effect of internalization of the thin ideal on disturbed eating attitudes and behaviors, or that body dissatisfaction serves as a partial mediator of that relationship.

Next, consideration was given to the gender additive model. According to this model, elevated adiposity may precede perceived pressure to attain the thin ideal as well as body dissatisfaction. As perceived pressure was not a part of the model, analyses were conducted to determine whether elevated adiposity predicted the next theoretical links in the model, thin ideal internalization and body dissatisfaction. Results showed that the model was an excellent fit (Table 2, Model 2). Removal of either path, whether from elevated adiposity to body dissatisfaction or from elevated adiposity to internalization of the thin ideal resulted in a significant decrement in fit ( $p < .0001$  and  $p < .01$ ), respectively.

Third, it was hypothesized that girls with greater levels of social sensitivity would be more likely to adopt external standards of evaluation, including the thin ideal. As an addition to the sociocultural model, the present model suggests that greater levels of social sensitivity lead to internalization of the thin ideal and greater body dissatisfaction, in essence, with internalization of the thin ideal mediating the relationship between fear of negative evaluation and body dissatisfaction. Results of analyses showed an excellent fit, (Table 2, Model 3). Removal of either path, whether from fear of negative evaluation to body dissatisfaction or from fear of negative evaluation to internalization resulted in a significant decrement in fit ( $p < .0001$  and  $p < .0001$ ), respectively.

Table 2  
Fit indices for each of the models

Model	Fit indices									
	$\chi^2$	<i>df</i>	<i>P</i>	NFI	RFI	IFI	TLI	CFI	RMSEA	
1	.00	1	.951	1.00	1.00	1.00	1.00	1.00	.00	
2	2.09	1	.149	.999	.994	1.00	.997	1.00	.57	
3	1.72	1	.190	.999	.994	1.00	.998	1.00	.46	
4	4.51	2	.105	1.00	.992	.999	.996	.999	.06	
4a	2.26	2	.324	.998	.985	1.00	.998	1.00	.04	
4b	1.19	2	.551	.999	.996	1.00	1.00	1.00	.00	
4c	4.47	2	.107	.996	.969	.998	.982	.998	.12	

Note. Model 1. The sociocultural model of eating disorder development. Model 2. The sociocultural model of eating disorder development augmented by the gender additive model. Model 3. The sociocultural model of eating disorder development augmented by the social sensitivity model. Model 4. Expanded sociocultural model of eating disorder development. Model 4a. Expanded model for the expensive private school. Model 4b. Expanded model for the less expensive private school. Model 4c. Expanded model for the public school.

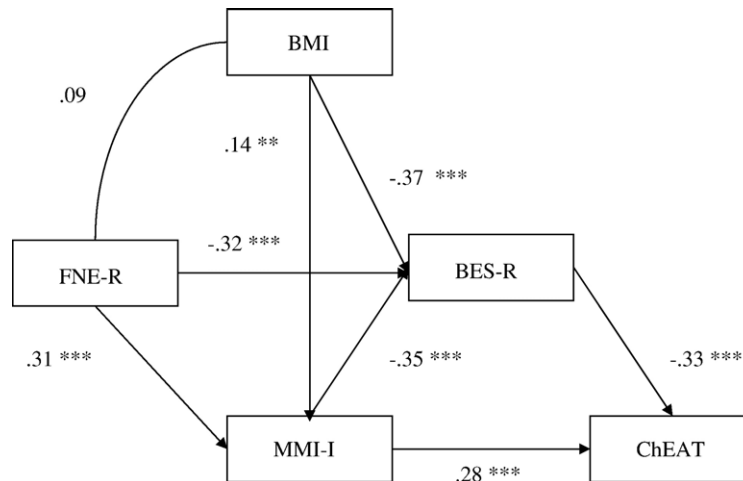


Fig. 1. Expanded sociocultural model of eating disorder development: Standardized regression coefficients. FNE-R=The Fear of Negative Evaluation Subscale of the Social Anxiety Scale for Children-Revised (LaGreca, Dandes, Wick, Shaw, & Stone, 1988); MMI-I=Multidimensional Media Influence Internalization Subscale (Cusumano & Thompson, 2001); BES-R=The Revised Body Esteem Scale for Children (Mendelson & White, 1982; Mendelson & White, 1993-1994); ChEAT=The Children's Eating Attitude Test (Maloney et al., 1989).

Finally, the question that remained was the manner in which elevated adiposity and social sensitivity might interact. It was theoretically plausible that elevated adiposity might bolster social sensitivity. Therefore, an arrow was added from elevated adiposity to social sensitivity (Fig. 1). Although the overall model was an excellent fit, (Table 2, Model 4), the path itself was non-significant. Therefore, this path was replaced by a correlation in the final model (same fit indices and regression coefficients).

The final model was then retested for the data from each school. The model was an excellent fit for each school, including the expensive private (Table 2, Model 4a), the less expensive private (Table 2, Model 4b), and public schools (Table 2, Model 4c). Although the small sample in the public school ( $n=85$ ) may have decreased the quality of fit, the increase in the RMSEA suggests the presence of unaccounted variance in the model. In addition, for only the public school girls, the paths from fear of negative evaluation and from elevated adiposity to internalization of the thin ideal as well as the path from internalization of the thin ideal to disturbed eating attitudes and behaviors were no longer statistically significant.

#### 4. Discussion

Despite concerns that the developmental pathways to eating disorder development may be culturally specific and have little to do with the thin ideal (Anderson-Fye & Becker, 2004), results showed that the relationship between internalization of the thin ideal and eating disorder symptomatology was mediated by body dissatisfaction, a result consistent with the sociocultural theory of eating disorder development (Stice & Agras, 1998). The model was also consistent with the gender additive model which suggests that girls with elevated levels of adiposity are also at risk for internalization of the thin ideal and body dissatisfaction (Stice & Bearman, 2001).

An addition to this model was the inclusion of social sensitivity, conceptualized as a heightened awareness of and reactivity to social interactions. According to Steiger et al. (1999), social sensitivity may reflect an intrinsic sensitivity to environmental and/or social stimuli. This excessive awareness and reactivity to interpersonal messages may underlie a tendency to rely on external standards of performance and appearance. Although only correlational in nature, these findings suggest that social sensitivity is a candidate for longitudinal investigation in eating disorder development and manifestation.

One might speculate about the specific cultural and societal factors in Guatemala that promote concerns with adiposity and attainment of a thin physique. One factor may be frequent exposure to media-portrayed images of slender female bodies (McArthur et al., 2005). Indeed, nearly 100% of the present sample owned television sets, watching between 3 and 4 h daily. A second possibility is that Guatemalan girls may view thinness as an avenue by which to advance economically or socially. Following the introduction of television in Fiji, one reason why girls attempted to emulate the characters seen on television was the desire to enhance their career and social prospects (Becker et al.,

2002). A third potential factor may involve threats to identity formation posed by new opportunities faced by young women. Threats to identity, particularly the conflict between traditional and modern ways, have been observed among women struggling with eating disorders in post World War II Japan (Pike & Borovoy, 2004) and among Taiwanese women undergoing modernizing changes (Tsai, Curbow, & Heinberg, 2003). In the present study, many girls attending the expensive private school identified themselves as neither Indigenous nor Ladina, placing them at greater risk for difficulties in identity formation and solidification.

The present study is not without limitations. The sample was limited to girls residing in Guatemala City, an urban area that has experienced greater growth, economic change, and exposure to Western ideals of physical appearance than more rural areas. Additionally, low socioeconomic urban girls, who may have dropped out of school prior to the fifth or sixth grade, may have been inadequately sampled. Such subcultures within developing countries have been identified in other countries and do sometimes exhibit health risk profiles more reminiscent of developed countries (Hoek et al., 2005). A methodological limitation was the application of instruments to a population different from that for which they were designed.

Future research is needed to evaluate the prognostic significance of the model. Although elevated adiposity and social sensitivity are two characteristics that may be used to identify the girls most vulnerable to internalization of sociocultural standards of appearance, research is needed to determine whether these characteristics are longitudinally or experimentally predictive of a vulnerability to the thin ideal. Second, reasons why girls may internalize the “thin” ideal, in contrast to which girls may internalize the thin ideal, remains to be investigated. In sum, the results support an extended version of the sociocultural theory of eating disorder development and suggest that developing countries are not immune to the influence of sociocultural factors that emphasize attainment of a thin ideal.

## Acknowledgment

We wish to thank Claudia García de la Cadena, Director of the Psychology Department of the Universidad del Valle of Guatemala, for her valuable assistance. We would also like to recognize our research assistants, Ana Gabriela González, Denisse López Esquivel, and Regina Lara. This research was generously supported by the Summer Research Award Program at Saint Louis University.

## References

- Anderson-Fye, E. P., & Becker, A. E. (2004). Sociocultural aspects of eating disorders. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 565–589). New Jersey: Wiley.
- Atlas, G. D. (1994). Sensitivity to criticism: A new measure of responses to everyday criticisms. *Journal of Psychoeducational Assessment*, 12(3), 241–253.
- Becker, A. E., Burwell, R. A., Gilman, S. E., Herzog, D. B., & Hamburg, P. (2002). Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls. *British Journal of Psychiatry*, 180, 509–514.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238–246.
- Bentler, P. M., & Bonett, D. G. (1980). Significant tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588–606.
- Bollen, K. A. (1986). Sample size and Bentler and Bonett’s nonnormed fit index. *Psychometrika*, 51(3), 375–377.
- Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods and Research*, 17, 303–316.
- Boyce, P., & Parker, G. (1989). Development of a scale to measure interpersonal sensitivity. *Australian and New Zealand Journal of Psychiatry*, 23(3), 341–351.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The influence of sociocultural factors on body image: A meta analysis. *Clinical Psychology: Science and Practice*, 12(4), 421–433.
- Cusumano, D. L., & Thompson, J. K. (2001). Media influence and body image in 8-11-year-old boys and girls: A preliminary report on the multidimensional media influence scale. *International Journal of Eating Disorders*, 29(1), 37–44.
- Franko, D. L., & Herrera, I. (1997). Body image differences in Guatemalan-American and white college women. *Eating Disorders*, 5, 119–127.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31(1), 1–16.
- Hoek, H. W., van Harten, P. N., Hermans, K. M., Katzman, M. A., Matroos, G. E., & Susser, E. S. (2005). The incidence of anorexia nervosa on Curacao. *American Journal of Psychiatry*, 162(4), 748–752.
- International Labor Organization Bureau of Statistics (2007, January 7). Laborsta. Retrieved from <http://www.ilo.org/public/english/bureau/stat/index.htm>
- LaGreca, A. M., & Stone, W. L. (1993). Social anxiety scale for children—Revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology*, 22(1), 17–27.

- McArthur, L. H., Holbert, D., & Peña, M. (2005). An exploration of the attitudinal and perceptual dimensions of body image among male and female adolescents from six Latin American cities. *Adolescence*, *40*, 801–816.
- Maloney, M. J., McGuire, J. B., & Daniels, S. R. (1988). Reliability testing of a children's version of the eating attitude test. *Journal of the American Academy of Child and Adolescent Psychiatry*, *27*(5), 541–543.
- Maloney, M. J., McGuire, J., Daniels, S. R., & Specker, B. (1989). Dieting behavior and eating attitudes in children. *Pediatrics*, *84*(3), 482–489.
- Mendelson, B. K., & White, D. R. (1982). Relation between body-esteem and self-esteem of obese and normal children. *Perceptual and Motor Skills*, *54*(3), 899–905.
- Mendelson, B. K., & White, D. R. (1993-4). *Manual for the body-esteem scale for children*. Centre for research in human development Montreal, Quebec Canada: Concordia University.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*, (3rd ed.) New York: McGraw-Hill.
- Pike, K., & Borovoy, A. (2004). The rise of eating disorders in Japan: Issues of culture and limitations of the model of "Westernization." *Culture, Medicine and Psychiatry*, *28*(4), 493–531.
- Stark-Wroblewski, K., Yanico, B. J., & Lupe, S. (2005). Acculturation, internalization of western appearance norms, and eating pathology among Japanese and Chinese international study women. *Psychology of Women Quarterly*, *29*, 38–46.
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin*, *128*(5), 825–848.
- Stice, E., & Agras, W. S. (1998). Predicting the onset and remission of bulimic behaviors in adolescence: A longitudinal grouping analysis. *Behavior Therapy*, *29*, 257–276.
- Stice, E., & Bearman, S. K. (2001). Body-image and eating disturbances prospectively predict increases in depressive symptoms in adolescent girls: A growth curve analysis. *Developmental Psychology*, *37*(5), 597–607.
- Steiger, H., Gauvin, L., Jabalpurwala, S., Seguin, J. R., & Stotland, S. (1999). Hypersensitivity to social interactions in bulimic symptoms: Relationship to binge eating. *Journal of Consulting and Clinical Psychology*, *67*(5), 765–775.
- Striegel-Moore, R. H., Silberstein, L. R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, *41*(3), 246–263.
- Tsai, G., Curbow, B., & Heinberg, L. (2003). Sociocultural and developmental influences on body dissatisfaction and disordered eating attitudes and behaviors of Asian women. *The Journal of Nervous and Mental Disease*, *191*(5), 309–318.
- Unikel, C., Aguilar, J., & Gomez-Peresmitre, G. (2005). Predictors of eating behaviors in a sample of Mexican women. *Eating and Weight Disorders*, *10*(1), 33–39.
- United Nations Development Programme (2005). *Human development report 2005*. New York: Author.
- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (2002, November). Clinical growth charts. Available from Centers for Disease Control Website, [http://www.cdc.gov/hchs/about/major/nhanes/growthcharts/clinical\\_charts.htm](http://www.cdc.gov/hchs/about/major/nhanes/growthcharts/clinical_charts.htm)
- Vander Wal, J. S., & Thelen, M. H. (2000). Predictors of body image dissatisfaction in elementary-age school girls. *Eating Behaviors*, *1*(1), 105–122.
- Vander Wal, J. S., & Thomas, N. (2004). Predictors of body image dissatisfaction and disturbed eating attitudes and behaviors in African American and Hispanic girls. *Eating Behaviors*, *5*(4), 291–301.
- Warren, C. S., Gleaves, D. H., Cepeda-Benito, A., Fernandez, Mdel C., & Rodriguez-Ruiz, S. (2005). Ethnicity as a protective factor against internalization of a thin ideal and body dissatisfaction. *International Journal of Eating Disorders*, *37*(3), 241–249.