

Body Image of Adolescents in Taiwan

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Abstract- The primary goal of this research is to investigate factors influencing body image among adolescents and their group differences in Taiwan. Subjects were 180 vocational high school students aged 16 yrs. to 18 yrs. equally distributed by gender ($m = 17.28$; $sd = 1.06$). Scales included a basic inventory, personal trait inventory (including self-esteem and depression), parental influence inventory, peer influence inventory, body image inventory, and figure rating scale. Data were analyzed using Pearson correlation, stepwise regression, and *t*-tests. Findings include: adolescents with higher self-esteem had lower body image scores; parental influence and peer influence showed significant positive correlation with body image; and both body mass index (BMI) and depression showed significant positive correlation with body image. The variables of peer influence, BMI, self-esteem, and gender show predictive value with respect to body image. Groups with high/low self-esteem, parental influence, peer influence, and BMI scores showed significant variance in body image. Most adolescents would like to lose weight and be taller. Of the nine body type figures, subjects' 'actual' body type corresponded to Numbers 3 or 4, while 'ideal' body type tended toward Number 3, tall and slender.

Keywords- *Body Image; Body Satisfaction; Personal Traits; Parental Influence; Peer Influence; BMI; Body Change Behaviors; Taiwanese Adolescents*

I. INTRODUCTION

Adolescence is the stage of most rapid body growth and development, as well as an important period for individual physiological and psychological adaptation. After the onset of pubescence, secondary sexual characteristics become increasingly apparent. At around 12 years of age girls experience a physical growth spurt, the beginning of menstruation, breast development, axillary and pubic hair growth, and genital development. At around 14 years boys experience a growth spurt, 'Adam's apple' development, lowered voices, receding hairlines, axillary and pubic hair growth, increased body hair, and development of the external genitalia (Huang, 2004). The extensive physical development and changes that boys and girls experience during pubescence bring with them psychological changes in self perception and identity, which in turn influence behavioral adaptation and character development. However, because these psychological changes differ between cultures, times, and locations, adolescent body image has become a topic of considerable interest in adolescent research.

Body image refers to an individual's subjective consciousness, thoughts, and feelings about his or her physical characteristics, as well as feelings about other

people's perception of these characteristics. Contemporary television, newspaper, magazine, and online media are pervasive, fast-paced, and constantly broadcasting all manner of body images. Adolescents, who are at a stage of intense social comparison, are likely to adopt media images as standards of reference and use them as the basis for judging their own and other people's bodies. Adolescents are also markedly susceptible to peer influence, and peer group opinion can also influence body image-related judgments and values.

An adolescent's experiences, viewpoints, and feelings regarding body image are mutually influential. Adolescents who are not satisfied with their body image may readily develop feelings of inferiority, depression, or disordered eating patterns. On the other hand, those who are satisfied with their body image will have greater confidence and higher self-esteem (Huang, 2004; Smolak, 2004; Stice, 2002). Research indicates that in many countries including Australia, Croatia, England, Israel, Mexico, Sweden, and the USA, dissatisfaction with body image is widespread among adolescents. For example, surveys show that 28% to 55% of adolescent girls want to lose weight, while 4% to 18% want to gain weight; 17% to 30% of adolescent boys want to lose weight, and 13% to 48% want to gain weight (Ricciardelli & McCabe, 2001). There is a well-developed corpus of published body image research from Taiwan and other Chinese and Asian cultures comparing males' and females' self-perceptions related to weight and other physical characteristics evidencing strikingly similar body dissatisfaction and body image disorders among overweight adolescents (e.g., Chan & Owens, 2005; Chen & Jackson, 2008; Ma, 2007; Xu, Mellor, Kiehne, Ricciardelli, McCabe, & Xu, 2010); similarly, results indicate that obese Chinese adolescent females' from Eastern cultures harbor an equivalent idealization of thinness and a desire to lose weight as seen in the West (Chen, Fox, & Haase, 2010; Li, Hu, Ma, Wu, & Ma, 2005). Patterns of body dissatisfaction and consequent maladaptive eating disorders have been reported in other non-Western settings, such as Japan (Pike & Borovoy, 2004), Fiji (Ricciardelli, McCabe, Mavoa, et al., 2007; Ricciardelli, McCabe, Williamson, & Thompson, 2007), and Malaysia (Mellor, Ricciardelli, McCabe, Yeow, Daliza, & Binti Mohd Hapidzal, 2009).

In general, adolescents tend to be sensitive to issues relating to their height, weight, body type, breast development, and muscle mass—girls even more than boys. Adolescents are concerned about being accepted by others,

making them easily influenced by their surroundings and prone to negative judgments of their own appearance. Receiving external criticism related to appearance or body shape can be unsettling or embarrassing for adolescents. Adolescent boys generally want to be stronger and have greater muscle mass (Smolak, Murnen, & Thompson, 2005), while girls want to lose weight (Muris, Meesters, van de Blom, & Mayer, 2005).

Body image is influenced by cultural and social values, and attitudes towards body shape often change with the times and with prevailing tastes. In the Tang dynasty (CE. 618-907), for example, fatness was prized, and full-figured women like Yang Kwei-Fei were considered beautiful. At present most fashion models are thin and frail looking and the popular media seem to have developed a reverence for thinness, creating a general belief that 'thin is beautiful'. This view has also taken root among adolescents. Aesthetic values are learned and an individual's standards of beauty are formed via social comparison. Those who do not meet society's standards of beauty are assumed to be unattractive or ugly. Body image among adolescents is also strongly influenced by significant others, including parents, siblings, teachers, and peers. The family is the first environment with which an individual comes in contact, and the family's attitude toward and appraisal of body image plays a pivotal role. Children rely on and learn from parents at home, and an awareness of parental opinions forms the standard for body satisfaction or dissatisfaction and for related behaviors. Early adolescent girls are most strongly influenced by their families, and family pressures are strongly correlated with body dissatisfaction, more strongly than media pressure or peer pressure (Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2003). Young, Clopton, and Bleckley (2004) discovered that males were most strongly influenced by their mothers, with most boys saying that their mothers concern had a positive influence, and 25% of mothers praising their adolescent sons, a higher percentage than fathers or male peers. Fathers influenced their sons' self concept and values and provided a model for gender roles. Overall, parents play a more important role in the formation of body image than peers (Stanford & McCabe, 2005).

With respect to their peers, adolescents are highly susceptible to feelings of helplessness, lack of self-confidence, and negative self-concept. After entering a peer group, adolescents develop a sense of belonging and the peer group becomes their support structure, leading to increased self-confidence. Adolescents will feel that they personally possess any special attributes possessed by the group as a whole (Huang, 2004). Relationships with peers play an extremely important role in adolescent development, and peers have important powers of influence over an individual's character development, physical characteristics, and behavioral tendencies. Peers also have a strong influence on body image for both boys and girls, with girls focused on weight loss behaviors and boys focused on both muscle building and weight loss. Intimate friends during the period of late adolescence are thought to play the most important role. Adolescent girls are influenced by their female friends with regard to appearance and weight loss,

with groups of friends sharing body image and diet related experiences. Research assessing both concern for body image and binge/purge behavior found similar scores for all adolescent girls, indicating that peers have an important impact on body image and diet related issues during early adolescence (McCabe & Ricciardelli, 2005). Therefore, determining the major variables affecting body image, as well as their variation between groups and their predictive values, is of great importance.

The primary goal of this research is to investigate the factors influencing body image among adolescents in an Eastern culture, including such background variables as gender, height, and weight; body mass index (BMI), which is calculated using height and weight; personal traits (including self-esteem and depression); and the influence of parents and peers. This research thus has both theoretical and practical value. Based on the findings of this study, recommendations will be made about ways to promote healthy body image and overall physical and mental health among adolescents. We hypothesize that adolescents' self-esteem will predict their body image perceptions; that parental and peer influence will positively correlate with body image scores; and that depression and BMI positively correlates with body image.

II. METHOD

A. Research Framework

As already described, this research investigates factors influencing body image among adolescents including personal traits, body mass index (BMI), and parental and peer influence, and measures variations of body image scores with respect to background variables and personal trait groups. A research framework was constructed based on an analysis of related literature and the goals of this research. From the research framework (see Figure 1), we note that the background variables incorporated into this research protocol are gender, height, and weight, as well as BMI. Other factors influencing body image include parental and peer influences, and personal trait variables such as self-esteem and depression.

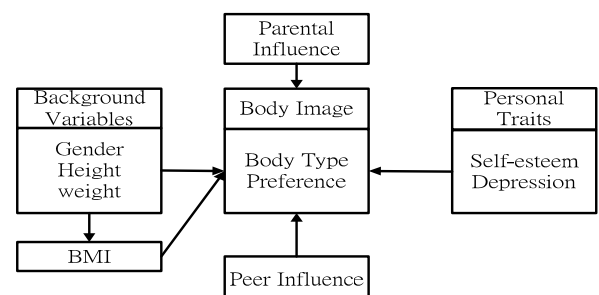


Figure 1 Research Framework

B. Participants

This research studied male and female students in the first through third years of vocational high school in central Taiwan (16 yrs. to 18 yrs. equally distributed by gender ($m = 17.28$; $sd = 1.06$)). To facilitate cooperation and honest responses, research protocols stated: "Your responses will

be used solely for academic research purposes, and will be kept strictly confidential. Please answer honestly.” The survey was conducted over a two-week period and administered by teachers in their classrooms. A total of 205 surveys were returned. After elimination of invalid surveys, 180 valid surveys remained. The final sample group included 90 males and 90 females.

C. Materials

In order to achieve the goals set out above and determine whether or not the hypotheses are supported, the following materials were used to collect data: (1) basic inventory; (2) personal trait inventory; (3) parental influence inventory; (4) peer influence inventory; (5) body image inventory; and (6) figure rating scale. Each is described below.

Basic Inventory:

The basic inventory includes information on gender, age, grade in school, actual height and weight, and desired height and weight. BMI was calculated according to the formula $BMI = \text{weight (kg)} / \text{height}^2 (\text{cm}^2)$. Subjects were classified as overweight or underweight based on the height and weight standards for adolescents established by the Executive Yuan Department of Health (Taiwan). Normal height range for boys is 166 cm to 177.5 cm, and for girls 154 cm to 164.5 cm. Normal weight range is 55 kg to 71 kg for boys, and 45.9 kg to 58 kg for girls. Normal BMI values are 19.2 to 23.7 for boys, and 18.3 to 22.7 for girls. Values outside this range are considered over or underweight (Executive Yuan Department of Health, 2007).

Personal Trait Inventory:

The personal trait inventory included scales for self-esteem and depression.

Self-Esteem Inventory:

Reference was made to the Self-esteem Scales of Rosenberg (1965), Tiggemann (2005), and Young, Clopton, and Bleckley (2004). There were 5 reversed items, Questions 3, 5, 8, 9, and 10, with the rest being positively worded. Four possible responses were offered: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree. The highest possible score is 40 points, with higher scores indicating higher levels of self-esteem and lower scores representing lower self-esteem. Factor analysis revealed two factors, with an explained variance of 49%, and Cronbach's α of 0.759 and 0.701. The overall internal consistency reliability of the scales was 0.791, indicating good uniformity between the two scales. These scales have relatively high construct validity and reliability.

Depression Inventory:

The depression inventory was formulated by the researchers based on the Beck Depression Inventory (Beck, 1961; Beck, Steer, & Garbin, 1988). Numerous studies have shown that the original scale has a high degree of reliability and validity (Mischoulon, McCull-Vuolo, Howarth, Lagamasino, Alpert, Nierenberg, Fava, 2001; Yeung, Howarth, Chan, Sonawalla, Nierenberg, & Fava, 2002). The inventory has 10 questions, each of which had four

responses scored 0 to 3. The maximum possible score is 30. The KMO value of a sample was 0.732, indicating very few common factors among the variable (therefore a factor analysis was not completed). The internal consistency reliability of the inventory was 0.640.

Parental Influence Inventory:

This scale is a modification of the Social Influence Model proposed by Keery, van den Berg, and Thompson (2004). It contains 43 questions covering three factors: Peer, parental, and media influence. Sixteen questions concern parental influence, primarily investigating parent's attitudes and opinions about their children's appearance, weight, and health. Points are awarded as follows: 1 = strongly disagree; 2 = disagree; 3 = agree; and 4 = strongly agree. The highest possible score is 64, with higher scores indicating a higher degree of parental influence over the body image of their adolescent children. A factor analysis revealed factor loadings of 0.45 and above, all of which were retained. KMO value of a sample was 0.825, indicating common factors among the questions. The factor analysis also revealed explained variance of 66% for the four variables. The Cronbach's α of the four subscales was between 0.807 and 0.871, and internal consistency reliability was 0.890, indicating very good internal consistency. This scale possesses good construct validity and reliability (Jöreskog, Sörbom, Du Toit, & Du Toit, 2003).

Peer Influence Inventory:

This inventory was likewise a modification of the Societal Influence Model created by Keery, van den Berg, and Thompson (2004). The inventory contains 13 questions covering the attitudes and opinions of the subject's peers with regard to appearance, weight, and health. The inventory contains 3 reversed items—Numbers 3, 4, and 5, with the remainder being positively worded. Four response options were given: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree. The highest possible score is 52, with higher scores indicating a stronger peer influence over body image. The KMO value of a sample was 0.684, indicating very few common factors and eliminating the need for a factor analysis. Internal consistency reliability was 0.767.

Body Image Inventory:

A modification of the Body Attitudes Questionnaire of Ben-Tovim and Walker (1991) was used. The original inventory was multidimensional and contained 44 questions assessing six different dimensions: feeling fat, attractiveness, disparagement, salience, lower body fatness, and strength. The scores of the sub-inventories and the inventory as a whole reveal the subject's attitude towards his or her body. After modification, the inventory contained a total of 14 questions in two dimensions, namely 'emphasis on body shape' and 'perception of physical appearance'.

There was one reversed item, Number 11, with the remainder being positively worded. There were four possible responses to each question: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree. The maximum possible score was 52, with higher scores representing a

higher level of dissatisfaction with the body. The KMO value of a sample was 0.817, indicating the existence of common factors. A factor analysis revealed a total of two factors, with factor loading of 0.45 or above for all factors in all 14 questions, and an explained variance of 44%. Reliability analysis shows that the two sub-inventories have Cronbach's α of 0.834 and 0.604, respectively.

Figure Rating Scale:

The figure rating scale used in this research is a modification of the figure rating scale in Stunkard, Sorenson, and Schlusinger (1983). The original scale contained nine figures designed to measure body image and body type. The images numbered 1 through 9 grow in size linearly (boys in Figure 2, girls in Figure 3).

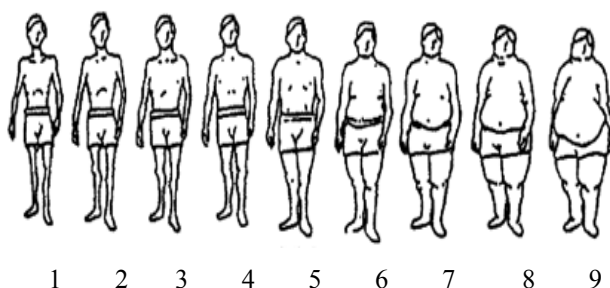


Figure 2 Boy's Figure Rating Scale

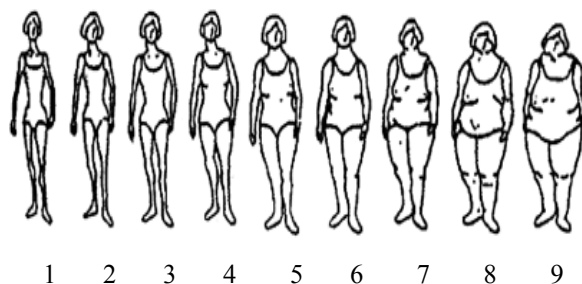


Figure 3 Girl's Figure Rating Scale

This figure rating scale has three main questions for the subject to answer: 1. "In your opinion, you most resemble figure ____"; 2. "You believe your actual shape to be most like ____"; 3. "You would like your shape to resemble ____". This inventory is designed to measure the discrepancies between body type ideals, awareness, and preferences, and whether or not agreement exists between them (Reiss, 2001).

D. Procedure

In August, 2007 the inventories to be used in this research were compiled and preliminary editing was done. This was followed by a preliminary testing period involving 60 vocational high school students from central Taiwan. The data collected in the preliminary testing were used as the basis for the factor analysis and reliability testing.

Formal testing was entrusted to high school teachers, with questionnaires completed in the classrooms. Timing of data collection was coordinated with the vocational high school and covered a period of two weeks. After collection

was complete, invalid inventories were eliminated and the data were entered into SPSS software for statistical analysis.

E. Statistical Analysis

The primary statistical methods used include: 1. Factor Analysis was used to determine the factor structure of each major inventory. 2. *t*-test was used to analyze gender-based differences in BMI and body image scores, as well as differences in body image scores between lower BMI groups and higher BMI groups (abnormally high and low). 3. Pearson Correlation Analysis was used to test the correlation significance in the overall score of body image factors with regard to BMI value, parental influence, peer influence, self-esteem, and depression. 4. Stepwise Regression used to test the predictive value of gender, BMI, parental influence, peer influence, self-esteem, and depression with respect to body image.

III. RESULTS

A. Correlation between Primary Variables and Body Image

The primary goal of this research was to investigate the impact of each primary variable on adolescent body image. First, the relationship between the primary variables and adolescent body image scores was determined. Primary variables included self-esteem, depression, parental influence, peer influence, and BMI. Table 1 presents a correlation matrix showing the correlation between body image and self-esteem, depression, parental influence, peer influence, and BMI.

Table 1 indicates a strong negative correlation between self-esteem and body image ($r = -0.297$, $p < 0.001$); a strong positive correlation between depression and body image ($r = 0.232$, $p < 0.001$); a strong positive correlation between parental influence and body image ($r = 0.316$, $p < 0.001$); a strong positive correlation between peer influence and body image ($r = 0.422$, $p < 0.001$); and a positive correlation between BMI and body image ($r = 0.417$, $p < 0.001$). Aside from body image, the only variable that showed a significant correlation with BMI was parental influence ($r = 0.264$, $p < 0.001$); the others showed no significant variation.

B. Primary Variables and Regression Forecasting of Body Image

In order to test the predictive value of each primary variable with respect to body image, gender was added to the variables given in the above matrix. Statistical analysis was completed using stepwise regression. Predictor variables included gender, self-esteem, depression, parental influence, peer influence, and BMI. The criterion variable was adolescent body image score. Results are provided in Table 2.

Table 2 shows that of the six predictor variables used in the regression, four were significant. The multiple correlation coefficient was 0.680, and combined explained variance was 0.462, indicating that the four variables can jointly predict 46.2% of the variance in adolescent body

image. Taken separately, peer influence had the highest predictive power, explaining 17.8% of the variance, followed by BMI (17.1%), self-esteem (6.8%), and gender (4.5%). The standardized regression equation is given by:

$$\text{Body image} = 0.327 \times \text{peer influence} + 0.498 \times \text{BMI} - 0.236 \times \text{self-esteem} + 0.224 \times \text{gender}.$$

C. Testing Group Variance in Adolescent Body Image

This research also investigated group variance in body image, particularly the differences in body image between groupings based on self-esteem (high vs. low), depression (high vs. low), parental influence (high vs. low), and peer influence (high vs. low). Table 3 gives the results of this group variance testing.

Table 3 shows that apart from depression, groupings based on all other primary variables show significant variance in body image. Self-esteem had a t-value of 4.66 ($p < 0.001$); it is clear from that table that subjects with higher self-esteem had lower body image scores. Students with higher self-esteem cared less about their bodies, consistent with the findings presented in Tables 1 and 2. From parental influence ($t = 3.834$, $p < 0.001$), peer influence ($t = 4.179$, $p < 0.001$), and BMI ($t = 5.947$, $p < 0.001$), we see that the greater the concern from parents and peers, the larger the difference between the high and low scoring groups. BMI value exhibits the same variance.

D. Desired Height and Weight, and Body Type Preferences among Adolescents

To determine desired height, weight, and body type among adolescents, subjects were queried regarding desired height and weight. Table 4 shows that 93.3% of boys want to be taller, as do 84.4% of girls, indicating that taller stature is prized by contemporary youth. Only a small minority wanted to be shorter or to remain the same height. Both boys and girls expressed a desire to lose weight, 61.1% of boys and 81.1% of girls. Over 10% also expressed a desire to gain weight (26.7% of boys and 8.9% of girls). Very few subjects wanted to maintain current weight.

Test subjects were also provided with figures (see Figure 2 and Figure 3) and asked to select those corresponding to their actual body type and their desired body type. Results are given in Table 3.

Table 5 shows that for both boys and girls, 'actual body type' corresponded most often to body type 3 ($N = 43$, 23.9%) and body type 4 ($N = 53$, 28.9%), while 'desired body type' corresponded most often to desired type 3 ($N = 98$, 54.4%) and desired type 4 ($N = 44$, 24.4%). Thus, for both actual and ideal body types adolescents preferred tall and slender figures. This suggests that most of today's adolescents desire a slim profile.

TABLE I CORRELATION MATRIX FOR BODY IMAGE AND SELF-ESTEEM, DEPRESSION, PARENTAL INFLUENCE, PEER INFLUENCE, AND BMI

	Mean	SD	Body Image	Self Esteem	Dep.	Parental Influence	Peer Influence	BMI
Body Image	34.77	5.59	1.000					
Self-esteem	27.89	3.80	-0.297 ***	1.000				
Depression	3.86	2.84	0.232 ***	-0.529 ***	1.000			
Parental Infl.	32.84	7.44	0.316 ***	-0.109	0.056	1.000		
Peer Influence	28.82	4.54	0.422 ***	-0.236 **	0.086	0.221 **	1.000	
BMI	21.10	3.53	0.417 ***	0.128	-0.076	0.264 ***	0.010	1.000

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

TABLE II MULTIPLE REGRESSION ANALYSIS OF PRIMARY VARIABLES WITH RESPECT TO BODY IMAGE

Variable	Multiple Correlation Coefficient (R)	Deterministic Cumulant (R squared)	Deterministic Variance (R squared)	F value	β coeff.	t value
Peer Infl.	0.422	0.178	0.173	38.549 ***	0.327	5.675 ***
BMI	0.591	0.349	0.341	47.383 ***	0.498	8.699 ***
Self-esteem	0.646	0.417	0.407	41.937 ***	-0.236	-4.043 ***
Gender	0.680	0.462	0.450	37.569 ***	0.224	3.832 ***

*** $p < 0.001$.

TABLE III BODY IMAGE SCORES FOR HIGH/LOW SCORE GROUPINGS OF EACH VARIABLE

Variable	High Group		Low Group		<i>t-Test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Self-esteem	33.11	4.89	37.20	4.54	4.644 ***
Depression	35.55	6.08	33.92	4.95	1.654
Parental Infl.	37.21	5.07	33.18	5.72	3.834 ***
Peer Infl.	36.79	5.95	32.51	5.23	4.179 ***
BMI	38.26	5.33	31.44	5.19	5.947 ***

*** $p < 0.01$.

TABLE IV DESIRED HEIGHT AND WEIGHT AMONG ADOLESCENT BOYS AND GIRLS

Desire to be:		Boys		Girls		Total	
		number	%	number	%	Number	%
Height	Shorter	4	4.4	7	7.8	11	6.1
	Same	2	2.2	7	7.8	9	5.0
	Taller	84	93.3	75	84.4	160	88.9
	Total	90	100.0	90	100.0	180	100.0
Weight	Heavier	24	26.7	8	8.9	32	17.8
	Same	11	12.2	9	10.0	20	11.1
	Lighter	55	61.1	73	81.1	128	71.1
	Total	90	100.0	90	100.0	180	100.0

TABLE V ACTUAL AND DESIRED BODY TYPE AMONG ADOLESCENT BOYS AND GIRLS

Body Type	Actual Body Type		Desired Body Type	
	#	%	#	%
1	1	0.6	1	0.6
2	18	10.0	14	7.8
3	43	23.9	98	54.4
4	52	28.9	44	24.4
5	34	18.9	19	10.6
6	18	10.0	4	2.2
7	10	5.6	0	0.0
8	4	2.2	0	0.0
9	0	0.0	0	0.0
Total	180	100.0	180	100.0

IV. DISCUSSION AND IMPLICATIONS

The results presented here show that an inverse correlation exists between self-esteem and body image scores. Adolescents with higher self-esteem generally have stronger self-confidence, value themselves, and are not swayed by others. Therefore increasing self-esteem among adolescents may help prevent excessive concern about physical appearance and anxiety about personal status. Scholars often recommend promoting academic achievements, providing more opportunities for success, increasing interpersonal interaction, and promoting athletic skills as ways to strengthen self-esteem (Huang, 2004). The current research also discovered a positive correlation between depression and body image, indicating that people with poor body image are prone to feelings of melancholy and unhappiness. Adolescence is a time of egocentrism often characterized by an imaginary audience and personal fable (Santrock, 2007). Adolescents can be overly sensitive and concerned about others' reactions. Teachers and parents should, therefore, try to be empathetic towards adolescents,

providing with them approval and encouragement. Both parental influence and peer influence were shown to have positive correlations with body image, with very clear differences between the high and low scoring groups. Parents and peers play an important role in the formation of adolescent body image, something about which parents should be aware. A positive correlation was also found between BMI and body image. Tables 4 and 5 also demonstrate that some adolescents are, in fact, overweight; thus physical fitness and weight loss programs may promote improved body image among adolescents.

The primary goal of this research was to investigate primary factors influencing adolescent body image, their effects and group differences. Test subjects were 180 vocational high school students from central Taiwan. Evaluative tools included a basic inventory, personal trait inventory (including self-esteem and depression), parental influence inventory, peer influence inventory, body image inventory, and figure rating scale. Statistical analysis was completed using Pearson correlation, stepwise regression,

and *t*-testing. The following are the important findings from this study: (1) adolescents with high self-esteem had lower body image scores; (2) parental influence and peer influence showed positive correlation with body image scores; (3) depression has a marked positive correlation with body image; (4) BMI is also positively correlated with body image; (5) peer influence, BMI, self-esteem, and gender have significant predictive value with respect to adolescent body image; (6) body image varied significantly between groups with high and low self-esteem, parental influence, peer influence, and BMI; (7) most adolescents would like to grow taller and lose weight; (8) given nine body types to choose from, subjects' 'actual' body type tended toward Numbers 3 or 4, while 'ideal' body type tended towards Number 3, a tall slender figure. These findings indicate that the variables under investigation all have significant influence on adolescent body image; self-esteem however is inversely proportional to body image; thus, increasing adolescent self-esteem is extremely important. The findings also showed that depression is not a strong predictive factor for adolescent body image. A cause/effect analysis was not performed; more research is needed into the relationship between depression and body image. BMI value is considered a reliable way to test whether or not a person is overweight, and this research found that adolescents with high BMI (potentially overweight) are more concerned about their own body image. It was also found that peers have considerable influence, in agreement with the work of other adolescent researchers (Huang, 2004; Santrock, 2007; Smolak & Stein, 2006). Peer influence must not be overlooked in effort to promote physical and mental wellbeing among adolescents.

Recommendations concerning education and counselling strategies are based on these findings. It was discovered that although parental influence over body image is not as strong as peer influence, it is still an important factor. Parents should be involved in the daily lives of their adolescent children by ensuring access to a balanced nutritional regimen, adequate sleep, regular exercise and appropriate recreational activities in order to promote healthy physical and mental development (Huang, 2004). Eating a variety of foods and avoiding foods that are greasy, deep fried, high in sugar, and high in fat will help adolescents maintain desirable body types, and help create positive body image. Schools should provide similarly nutritious foods, allowing classmates and peers to mutually encourage healthy eating and exercise habits and share appropriate body images. In addition, counselling opportunities should be provided to those with negative body images and high levels of depression, and weight loss plans should be developed. Teachers and parents should empathize with and show concern for adolescents, expressing approval and encouragement. These are important ways to promote healthy growth and development, the formation of desirable body type and body shape, and the establishment of positive body image.

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