



The associations of sociocultural attitudes towards appearance with body dissatisfaction and eating behaviors in Hong Kong adolescents



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ARTICLE INFO

Article history:

Received 13 August 2012

Received in revised form 14 January 2013

Accepted 8 May 2013

Available online 15 May 2013

Keywords:

Sociocultural attitudes

Body dissatisfaction

Motivations for eating

Eating behaviors

ABSTRACT

Objectives: Western culture has great influences on body dissatisfaction and related eating behaviors in adolescents. This study aimed to assess the sociocultural influences on eating attitudes and motivations among Hong Kong Chinese adolescents.

Methods: In 2007, 909 adolescents (mean age = 14.7 years, 55.3% boys) completed a survey with Stunkard's Figure Rating Scale (FRS), Motivation for Eating Scale (MFES), Eating Attitudes Test (EAT), Revised Restraint Scale (RRS), and Sociocultural Attitudes Towards Appearance Scale (SATAQ). In addition, their body mass index (BMI) was objectively measured.

Results: Our results indicated that Hong Kong adolescents, particularly girls exhibited a remarked level of body dissatisfaction, external, emotional, restrained and disordered eating behaviors. Hierarchical regression analyses indicated that age, sex and BMI were the most common contributing factors to individual eating styles. SATAQ significantly accounted for an additional variance of body dissatisfaction (2%), physical eating (2%), external eating (1%), emotional eating (3%), restrained eating (5%), and disordered eating (5%).

Conclusions: In Hong Kong, the sociocultural influences on body image and eating disturbance were supported.

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1. Introduction

According to the nutrition transition model (Popkin, 1994), dietary pattern of a society becomes more diversified amidst urbanization and rises of income (Perisse, Sizaret, & Francois, 1969). This dietary diversity is often associated with an increase in proportion of fats and sweeteners (Drewnowski & Popkin, 1997), and is blamed for increases in rates of degenerative diseases, obesity and chronic diseases (Popkin, Richards, & Montiero, 1996; Rigby, Kumanyika, & James, 2004). On the other hand, the sociocultural model of disordered eating (Stice, Schupak-Neuberg, Shaw, & Stein, 1994) proposed that long-term restriction of dietary intake might cause lower sensitivity to internal cues of hunger, leading to subsequent reliance on cognitive control over eating behaviors, and negative affect among individuals (Stice, 2001; Stice & Bearman, 2001). The replacement of physical eating with restrained and emotional eating could lead to negative physical and psychological consequences. Physically, restrained eating

stimulates a famine survival response, resulting to lower metabolic rate and increased fat deposition. Psychologically, dietary restraint creates a sense of deprivation accompanied by binge eating in order to regulate the negative emotion induced (Canetti, Bachar, & Berry, 2002; McCarthy, 1990; Stice, 2002). This dysfunctional relation with food increases the likelihood of mood dysregulation and disordered eating problems. Empirical evidence supporting this argument found that people with higher perceived pressure and internalization of thin ideals were more likely to replace intuitive physical eating by disordered eating behaviors (Hawks, Madanat, Merrill, Goudy, & Miyagawa, 2003; Hawks, Merrill, Madanat, et al., 2004; Hawks, Merrill, Julie, & Hawks, 2004; Madanat, Brown, & Hawks, 2007; Madanat, Hawks, & Novella, 2006).

Adult obesity and disordered eating are closely related to unhealthy eating styles in adolescence (Guldan, Cheung, & Chui, 1998), which is the period for individuals starting to expose to and recognize social norms of attractiveness (Thompson & Stice, 2001). There may be a link between sociocultural attitudes towards appearance that are internalized by adolescents and their body images, motivations for eating, as well as their cognitive dietary restraint practices. The current study aimed to examine these eating behaviors and their relations with sociocultural attitudes towards appearances in Hong Kong Chinese adolescents.

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2. Methods

A total of 909 Hong Kong Chinese secondary school students (55.3% boys) aged between 12 and 18 ($M = 14.7$, $SD = 1.9$) years completed a health survey in 2007. Standing height was measured to the nearest 0.1 cm bare feet using a measuring tape fixed to a vertical wall and body weight to the nearest 0.1 kg in light clothing using an electronic scale. All participation was voluntary and ethical approval was obtained from the University Ethics Committee.

2.1. Body dissatisfaction

The Stunkard's Figure Rating Scale (FRS) is a visual ordinal scale with 9 schematic body silhouettes (Stunkard, Sorensen, & Schulsinger, 1983). Participants were asked to indicate which body figure best depicted their perceived (a) current status, (b) ideal status, (c) healthy figure, and (d) status preferred by the opposite sex. Body dissatisfaction is defined as the existence of discrepancy between the current and ideal figures.

2.2. Motivation for eating

The Motivation for Eating Scale (MFES) is a 43-item measure for assessing motivations for initiating food consumption on a 5-point Likert scale consisting of three factors: (a) Physical eating (hunger or physical need, such as growling stomach, and fatigue), (b) External eating (environmental eating due to advertisements, presence of palatable food, eating during meal preparation, etc., and social eating due to social pressures in family celebration, eating out with friends, etc.), and (c) Emotional eating (emotional stage of the eater, such as loneliness, boredom, and anxiety) (Hawks, Merrill, Julie, et al., 2004). Higher scores indicated positive agreement with the relevant eating motivation.

2.3. Dietary restraint

The Revised Restraint Scale (RRS) is a 10-item measure for identifying restrained eaters, who disinhibit and restrained food intake (Herman & Polivy, 1980). It consists of two subscales: (a) Weight

Fluctuation (WF); and (b) Concern for Dieting (CD). Options for the responses are on 5-point Likert scale for the WF subscale, and on 4-point Likert scale for the CD subscale. The total score of the scale ranges between 0 and 44. Higher scores indicate stricter dietary restraint.

2.4. Disordered eating

The Eating Attitudes Test (EAT-26) is a 26-item measure (Garner, Olmsted, Bohr, & Garfinkel, 1982) for assessing attitudes and behaviors of eating disorders (Rosen, Silberg, & Gross, 1988). It consists of three subscales tapping (a) Dieting (avoidance of fattening foods and preoccupation with thinness), (b) Bulimia and Food Preoccupation (thoughts about food and bulimia), and (c) Oral Control (self-control about food and social pressures to gain weight). Higher scores indicate more abnormal eating attitudes and behaviors.

2.5. Sociocultural attitudes towards appearance

The Sociocultural Attitudes Towards Appearance Scale (SATAQ) is a 30-item measure for assessing internalization of sociocultural appearance standards (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). It consists of four subscales with response on a 5-point scale: (a) Internalization-General (InternG) subscale mainly evaluates the endorsement and acceptance of unrealistic ideal images; (b) Internalization-Athletic (InternA) subscale assesses the endorsement and acceptance of an athletic body ideal; (c) Information (Info) subscale assesses the importance of various forms of media for obtaining information about 'being attractive'; and (d) Pressures (Pressures) subscale assesses perceived pressure to achieve the media body ideal. Higher scores indicate higher societal and media impact on body image of the individual.

3. Results

Body mass index (BMI) value was used for classifying participants into underweight, normal, overweight/obese based on the International Obesity Task Force (IOTF) standard (Cole, Bellizzi, Flegal, & Dietz, 2000). As shown in Table 1, the prevalence of underweight,

Table 1
Summary of weight status, body figure preference, and eating styles of Hong Kong Chinese boys and girls.

	Boys ($N = 503$) N (%)	Girls ($N = 406$) N (%)	All ($N = 909$) N (%)	p^a
Age (years; M , SD)	14.6 (1.9)	14.8 (1.9)	14.7 (1.9)	.330
Body mass index (M , SD)	20.7 (3.87)	20.5 (3.61)	20.7 (3.7)	.430
Weight status				
Underweight	49 (9.7)	46 (11.3)	95 (10.5)	.092
Normal	333 (66.2)	290 (71.4)	623 (68.5)	
Overweight	88 (17.5)	50 (12.3)	138 (15.2)	
Obese	33 (6.6)	20 (4.9)	53 (5.8)	
Figure Rating Scale				
Preference for heavier figures	187 (37.2)	42 (10.3)	229 (25.2)	<.001
No discrepancy	131 (26.0)	78 (19.2)	209 (23.0)	
Preference for thinner figures	185 (36.8)	286 (70.4)	471 (51.8)	
Motivation for Eating Scale (M , SD)				
Physical	2.98 (0.8)	3.07 (0.73)	3.02 (0.77)	.066
External	2.57 (0.66)	2.72 (0.61)	2.64 (0.64)	<.001
Emotional	2.25 (0.68)	2.4 (0.71)	2.32 (0.70)	.002
Revised Restraint Scale (M , SD)				
Weight Fluctuation	2.12 (2.44)	2.06 (2.23)	2.1 (2.35)	.714
Concern of Dieting	4.22 (2.55)	5.98 (2.82)	5.01 (2.81)	<.001
Eating Attitudes Test-26 (M , SD)				
Dieting	4.79 (5.9)	7.04 (6.61)	5.8 (6.32)	<.001
Oral Control	3.93 (3.47)	3.76 (3.62)	3.85 (3.54)	.467
Bulimia	3.71 (2.68)	4.31 (2.85)	3.97 (2.77)	.001
Sociocultural Attitudes Towards Appearance Scale (M , SD)				
Internalization-general	2.58 (0.90)	2.81 (0.79)	2.68 (0.86)	<.001
Internalization-athlete	2.65 (0.91)	2.74 (0.80)	2.69 (0.86)	.066
Pressures	2.57 (0.86)	2.80 (0.77)	2.67 (0.83)	<.001
Information	2.83 (0.84)	2.96 (0.72)	2.89 (0.79)	.007

^a p -value for independent sample t -test between boys and girls for continuous variables and chi-square test for categorical variables.

overweight and obesity was 10.5%, 15.2% and 5.8%, respectively, in Hong Kong adolescents. Concerning their body dissatisfaction, while most girls (70.4%) wanted to be thinner, a higher percentage of boys (37.2%) wanted to be heavier. Among the participants who reported preference for thinner figures, 1.6% of boys and 4.2% of girls were underweight, and among those who reported preference for heavier figures, 3.2% of boys and 4.8% of girls were indeed overweight or obese. On eating behaviors, girls scored significantly higher on MFES – External, MFES – Emotional, RRS – CD, EAT – Dieting, and EAT – Bulimia and Food Preoccupation; and boys scored higher in SATAQ – InternG, SATAQ – Pressures, and SATAQ – Info. Consistently, the results indicated that girls were more inclined to unhealthy eating styles, and received greater sociocultural influence than boys.

Hierarchical multiple linear regression analyses were conducted with the scores of FRS, MFES, RRS and EAT-26 as the dependent measures. Sex and age, BMI, and SATAQ were entered in this order to separate blocks. As shown in Table 2, significant increment in variances explained by the block of SATAQ subscale scores were observed in all dependent variables. This suggested that sociocultural attitudes towards appearance from the West may contribute to the development of body dissatisfaction and various unhealthy eating styles in Chinese adolescents.

Concerning individual predictors, sex was the only predictor that had significant association with most of the dependent variables (except physical eating). The positive regression coefficients for sex indicated that being female was associated with a higher level of body dissatisfaction, external, emotional, restrained eating, and disordered eating even when age was considered together. The results also revealed that the SATAQ – InternG was positively associated with external and emotional eating. Additionally, SATAQ – Pressures was positively associated with body dissatisfaction, physical eating, and disordered eating, but negatively associated with external eating. SATAQ – Info was positively associated with physical eating, but negatively associated with body dissatisfaction.

4. Discussion

Our findings lend support to the argument that sociocultural attitudes towards appearance are associated with unhealthy body image and eating behaviors. The results suggest that the more adolescents are exposed to and identify with the messages from the society and the media about thin-body ideals, the more likely they would suffer from deficits in body dissatisfaction and to participate in disordered eating behaviors. Moreover, overweight/obesity, elevated body dissatisfaction, and eating out of non-hunger based motivations are common in Hong Kong adolescents. The prevalence of overweight/obesity (24.1% in boys and 17.2% in girls) was more serious than that reported in another local study (17.4% in boys and 8.5% in girls) (Ko et al., 2008), and have reached a comparable level to those of other developed places in the Asia Pacific region such as Australia, Japan and Taiwan (Wang & Lobstein, 2006). Similarly, preference for thinner figures was more common for Hong Kong girls than for their Native American, White, and Hispanic counterparts (Lam et al., 2009). Even worse, body dissatisfaction reported by Hong Kong adolescents was not reflective of their actual weight. While a substantial proportion of adolescents who depicted themselves as too heavy were indeed normal or underweight (55% in boys and 88% in girls), a number of those reported a desire for heavier figures were not underweight as well (79% in boys and 52% in girls). This alerts us that apart from the thin-idealization, a mistaken desire to be heavier, which may reflect a worry of being underdeveloped, is also a common concern regarding body figure in Hong Kong Chinese adolescents.

4.1. Eating behaviors and sociocultural attitudes towards appearance in Hong Kong adolescents

The significantly higher score on physical eating reflected a higher tendency for Hong Kong adolescents to initiate eating on the basis of physical hunger. This may seem contradictory with our hypothesis

Table 2 Hierarchical multiple regression results (unstandardized coefficients) for body dissatisfaction, motivation for eating, dietary restraint, and disordered eating.

Criterion	FRS									MFES									RRS									EAT-26								
	Body dissatisfaction			Physical eating			External eating			Emotional eating			Restrained eating			Disordered eating			Restrained eating			Disordered eating			Restrained eating			Disordered eating								
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3									
Predictor	<.0001	-.02	-.01	0.04	0.05	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.07	0.04	0.06	0.07	0.04	0.06	0.07	0.05	0.07	0.05	0.07	0.05	0.07	0.05	0.09								
Age	0.89***	0.93***	0.87***	0.09	0.08	0.10	0.15**	0.14**	0.14**	0.14**	0.13**	0.13**	0.11*	1.69***	1.73***	1.53***	1.69***	1.73***	1.53***	2.60***	2.63***	2.60***	2.63***	2.60***	2.63***	2.60***	2.63***	2.04**								
Sex	-	0.19***	0.18***	-	-0.03	-0.03	-	-0.03	-	-	-0.03	-	-0.02	-	0.24***	0.24***	-	0.24***	0.24***	-	0.18	0.18	-	0.18	0.18	-	0.16									
BMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
SATAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
InternG	-	-	0.09	-	-	0.06	-	-	0.13*	-	-	-	0.18**	-	-	-	-	-	0.43	-	-	-	-	-	-	-	0.65									
InternA	-	-	-0.09	-	-	-0.02	-	-	-0.001	-	-	-	-0.05	-	-	-	-	-	0.52	-	-	-	-	-	-	-	0.77									
Pressures	-	-	0.33**	-	-	0.22**	-	-	-0.12*	-	-	-	0.02	-	-	-	-	-	0.41	-	-	-	-	-	-	-	2.11*									
Info	-	-	-0.19*	-	-	0.15**	-	-	0.07	-	-	-	0.04	-	-	-	-	-	-0.30	-	-	-	-	-	-	-	-0.82									
F	50.63***	158.68***	73.81***	6.68**	10.79**	7.02**	9.94***	14.33***	8.21***	7.00***	7.67***	6.75***	19.45***	22.18***	17.87***	6.67**	5.65**	6.67**	17.87***	6.67**	5.65**	6.67**	5.65**	6.67**	5.65**	6.67**	9.06***									
R ²	0.10	0.35	0.36	0.02	0.04	0.05	0.02	0.05	0.06	0.02	0.03	0.05	0.2	0.3	0.37	0.02	0.02	0.02	0.37	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.07									
ΔR ²	0.10	0.24***	0.02***	0.02***	0.02	0.02***	0.02***	0.02***	0.02**	0.01**	0.01**	0.03*	0.04***	0.05***	0.05***	0.004	0.004	0.05***	0.05***	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.05									

Note. Male is coded as 1; female is coded as 2 in the regression analyses; FRS = Stunkard's Figure Rating Scale; MFES = Motivation for Eating Scale; RRS = Revised Restraint Scale; EAT-26 = Eating Attitudes Test; SATAQ = Sociocultural Attitudes Towards Appearance Scale; BMI = body mass index; InternG = Internalization-general; InternA = Internalization-athletic; Info = Information. p < .05. ** p < .01. *** p < .001.

that restrained, emotional and disordered eating would be the predominant eating behaviors in Hong Kong, which is a modern society with extensive exposure to the Western culture. Nevertheless, eating in response to physical hunger is a human instinct. A dysfunctional eating style emphasizes the presence of a high level of external and emotional eating, but does not necessitate the absence of physical eating. It is noteworthy that Hong Kong adolescents were more likely to report non-hunger based motivations for eating (i.e. external and emotional eating) than college student participants from less-developed countries such as Thailand (Craven & Hawks, 2006) and Philippines (Hawks, Madanat, Smith, & Novilla, 2006), and have approached those of Japan and US college students (Hawks et al., 2003).

Inconsistently, the RRS scores of our participants were much lower than those reported in a previous local study among adults from the West ($M = 12.44$, $SD = 5.14$) (Allison, Kalinsky, & Gorman, 1992; Ogden & Ogden, 1993; Williamson et al., 2007). Although this is a positive indication for parents and the health professionals, the high degree of disordered eating among Hong Kong adolescents raises some concerns. As indicated by the criterion of $EAT-26 \geq 20$, a considerable proportion of Hong Kong adolescents displayed sub-clinical level eating disorders (18.5% in boys and 26.7% in girls), which is higher than those reported in other local (Lee & Lee, 2000; Tam, Ng, Yu, & Young, 2007) and Asian studies from India (29%), Thailand (13%), Korea (6%), and Japan (5%) (Craven & Hawks, 2006; King & Bhugra, 1989; Ko & Cohen, 1998; Makino, Hashizume, Yasushi, Tsuboi, & Dennerstein, 2006).

Hong Kong adolescents in general were aware, pressured, and have internalized the socioculturally transmitted physical ideal from the West. Additionally, SATAQ was found to account for a significant proportion of the variances of body dissatisfaction and different motivations for eating. Even after controlling for the effects of sex, age, and BMI, westernization of the thinness ideal still led to higher body dissatisfaction, restrained, emotional and disordered eating. Such finding is in line with the prediction of the nutrition transition model (Hawks, Merrill, Julie, et al., 2004).

4.2. Limitations and strengths

The cross-sectional design limits us from distinguishing the causal relations between the variables. For instance, restrained eating may contribute to dietary disinhibition, which may give way to weight gain, further degrade one's body image, and sustain the cycle of dysfunctional eating (Heatherton, Herman, Polivy, King, & McGree, 1988). Moreover, the impact of different facets of sociocultural attitudes towards appearance on body dissatisfaction and eating disturbances was not in a universal direction as hypothesized. We found that the perception of media as a source of information about appearance is a protective factor of body dissatisfaction. Further investigations are required to affirm the relations between sociocultural attitudes towards appearance and the development of body image and eating disturbances in adolescents. Future studies should also examine how familial and peer social networks interact with media messages to reinforce these sociocultural ideals of physical attractiveness (Thompson & Stice, 2001).

5. Conclusions

While sociocultural attitudes towards appearance was a significant predictor of various eating styles in adolescents, external and emotional eating in Hong Kong adolescents were more prevalent than reported in equivalent samples in South-East Asia. The results are supportive to the nutrition transition model that economic development may facilitate external and emotional eating. More noteworthy, our results revealed a remarked level of disordered eating in Hong Kong adolescents. The beneficial effect of endorsement of media information on body image in adolescents underscores the need for practitioners to reexamine our understanding of the impact of sociocultural attitudes towards appearance on body dissatisfaction and motivations for eating.

Role of funding sources

No funding was sought.

Contributors

Ching-Man Lai conducted the literature review, conducted the statistical analysis, and drafted the manuscript.

Kwok-Kei Mak conducted the statistical analysis, and drafted and revised the manuscript.

Joyce S. Pang, Shirley S. Fong, Roger C. Ho, and Georgia S. Guldán critically revised the manuscript.

Conflict of interest

No conflict of interest for all authors.

Acknowledgment

No acknowledgment.

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