

Original Article

Comparisons of attitudes and practices between obese and normal weight women in Taiwan

Shene-Pin Hu PhD, Tzu-Yin Chiang MS, Sung-Ling Yeh PhD and Yi-Wen Chien PhD

Dept of Nutrition and Health Science, Taipei Medical University, Taipei, Taiwan, ROC

This study was designed to obtain baseline data regarding self-reported body image, attitudes toward overweight people, and dietary behaviors of normal-weight and obese women in Taiwan. Fifty obese women (BMI ≥ 27) and age-matched normal-weight women participated in this study. Written questionnaires were used for data collection. Simple frequency and t-test were used to analyze data. In general, the majority of normal-weight women perceived themselves as being heavier than their actual body weight. The normal-weight group had more high inaccurate images of their bodies than that of the obese group (72% vs. 24%). Obese and normal-weight women had similar attitudes to overweight people, but some of their attitudes showed significant differences. Obese women would prefer to consume more fried foods and drink sugar-containing foods than would normal-weight women ($p < 0.05$). Education about accurate perceptions of what is normal weight for women and adopting energy-diluted foods for obese women is needed in the future.

Key Words: weight-related attitudes, food and beverage practices, normal-weight, obese people, women Chinese

INTRODUCTION

Thinness has become a prerequisite of attractiveness, so being obese can be related to various degrees of feeling unattractive.¹ Attractive people are considered more intelligent, more mentally healthy, less deserving of punishment, and more likely to secure prestigious occupations than those deemed less attractive.^{2,3,4} Unfavorable attitudes toward overweight people in the United States have been reported in surveys of overweight persons.^{5,6,7} Similar attitudes have been expressed by psychotherapists.⁸ What are the attitudes of normal and obese people toward overweight persons?

Obese individuals are persuaded to believe that their eating is not a response to real hunger, but is rather a response to an emotional state or to confusion of one biologic drive with another.⁹ There is little scientific evidence to warrant such blanket assertions. In this study, we identify general and emotional dietary practices of normal-weight (NW) and obese (O) groups of women.

The purpose of this article is to describe the results of an attitude and dietary behavior questionnaire administered to obese and normal-weight women. This research might illuminate factors related to treatment of women in weight loss trials.

MATERIALS AND METHODS

Subject and study protocol

According to Nutrition Survey in Taiwan,¹⁰ the BMI (kg/m^2) of adults are classified as: acceptable ($18.5 \leq \text{BMI} < 24$), overweight ($24 \leq \text{BMI} < 27$) and obese ($\text{BMI} \geq 27$). Adults who participated in a hospital fitness program were screened for our study. Those who had BMI over 27 were invited to enter this study as obese (O) group ($n=50$). Then

46 women who attended an annual health examination were invited according to an age-matched obese group as normal weight (NW) group and agreed to fill with the questionnaire. All subjects were age 20-59 old and lived in Taipei area, a capital city in Taiwan. The mean height was 157.9 ± 0.8 and 157.7 ± 0.9 cm; the mean weight was 55.9 ± 0.7 and 77.1 ± 2.1 kg for NW and O group, respectively. The age, marriage, education and occupation level were no significant difference between both groups. The majority (64%) age were 20-39 old and 56% were married. Sixty percent of adults graduated from college or university. Thirty-eight percent of adults did not have job and 48% adults had average family incomes per month under NT\$80,000. Nine of NW group and 11 of O group had a disease history for, in particular, hypertension, diabetes, gout, renal or heart disease.

A questionnaire was administered that included demographic data on age, weight, and height. Subjects answered a designed question: how do you feel about your body image (to be obese, overweight or just right)? Then we get self-reported body image. We modified Laura⁷ (1995) question and contained 15 attitude statements about overweight people.

Corresponding Author: Dr. Yi-wen Chien, Dept. of Nutrition and Health Science, Taipei Medical University, 250 Wu-Hsing Street, Taipei 11014, Taiwan

Tel: 011-886-2-27361661# 6555

Fax: 886-2-27373112

Email: ychien@tmu.edu.tw

Manuscript received 18 September 2006. Initial review completed 11 October 2006. Revision accepted 14 November 2006.

Response options included four scales ranging from strongly disagree to strongly agree. Subjects were also asked 13 general questions (i.e. people response to high-fatty or high-sugar foods, etc) and four emotional questions (i.e. people action with unstable feeling) concerning dietary practices. Options included five scales ranging from never to always.

Five faculties evaluated the validity of the questionnaire with expertise inform university psychologists and nutritionists and by hospital dietitians. The questionnaire was administered before scheduled class time, and adults were advised that they were volunteers and could partici-

pate anonymously. All study subjects signed an informed consent form approved by Committee on Human Re-

Table 1. Comparison of calculated BMI and self-reported body image ¹

BMI	Obese	Self-reported Overweight	Just Right
18.5-24 (NW group)	5 (11%)	28 (61%)	13 (28%)
≥ 27 (O group)	38 (76%)	11 (22%)	1 (2%)

¹N = 96, BMI category according to the criterion of NAHSIT.¹⁰

Table 2. Distribution of attitude statements of the NW and O group about overweight people ¹

Statement	NW group (n = 46)		O group (n = 50)	
	No	(%)	No	(%)
1.Overweight people represent fortune.				
Strongly disagree/ disagree	44	95.7	45	90.0
Agree / strongly agree	2	4.3	5	10.0
2.Overweight people are optimistic.				
Strongly disagree/ disagree	31	67.4	26	52.0
Agree / strongly agree	15	32.6	24	48.0
3.Overweight people are easy to get along with.				
Strongly disagree/ disagree	30	65.2	24	48.0
Agree / strongly agree	16	34.8	26	52.0
4.Overweight people are clumsy.				
Strongly disagree/ disagree	16	34.8	19	38.0
Agree / strongly agree	30	65.2	31	62.0
5.Overweight people are lazy.				
Strongly disagree/ disagree	11	23.9	18	36.0
Agree / strongly agree	35	76.1	32	64.0
6.A person who is overweight is not a healthy person.				
Strongly disagree/ disagree	8	17.4	8	16.0
Agree / strongly agree	38	82.6	42	84.0
7.Overweight people are not as intelligent as normal-weight people.				
Strongly disagree/ disagree	38	82.6	38	76.0
Agree / strongly agree	8	17.4	12	24.0
8.Overweight people are not trustworthy.				
Strongly disagree/ disagree	44	95.7	48	96.0
Agree / strongly agree	2	4.3	2	4.0
9.Employers should not hire overweight people.*				
Strongly disagree/ disagree	20	43.5	12	24.0
Agree / strongly agree	26	56.5	38	76.0
10.Overweight people are gluttons.				
Strongly disagree/ disagree	9	19.6	13	26.0
Agree / strongly agree	37	80.4	37	74.0
11.Overweight people should be denied the foods they like.				
Strongly disagree/ disagree	20	43.5	20	40.0
Agree / strongly agree	26	56.5	30	60.0
12.Overweight people do not tell the truth about how much they eat.				
Strongly disagree/ disagree	26	56.5	31	62.0
Agree / strongly agree	20	43.5	19	38.0
13.Overweight people should feel ashamed of themselves for being overweight.				
Strongly disagree/ disagree	28	60.9	33	66.0
Agree / strongly agree	18	39.1	17	34.0
14.Overweight people are physically unattractive.*				
Strongly disagree/ disagree	10	21.7	3	6.0
Agree / strongly agree	36	78.3	47	94.0
15.I would feel embarrassed socializing with an overweight person.				
Strongly disagree/ disagree	41	89.1	43	86.0
Agree / strongly agree	5	10.9	7	14.0

¹ Number (%) ; options ranged from strongly disagree to strongly agree four scales; Chi-square test, * p < 0.05.

search at Taipei Medical University. The reliability of interterm consistency for attitude was 0.69.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS Users Guide 7.5). Chi-square and Student t tests were performed to identify statistically significant differences for attitude statements or dietary practices between obese people and the comparison group. The level of statistical significance was set at $p < 0.05$.

RESULTS

Self-reported body image

Sixty-one percent of the NW group considered themselves to be overweight ($BMI \geq 24$) and 11% said they were obese ($BMI \geq 27$), but their actual BMIs were between 18.5 and 24. Twenty-four percent of the O group had an inaccurate image of their bodies (Table 1).

Attitudes between NW & O group

Except for question 3, both groups had a similar tendency in their attitude statements about overweight people. About 62%-84% of both groups strongly agreed/agreed with three negative statements (i. e. overweight people are clumsy, lazy, and unhealthy). There was a significant

difference for the statement, "employers should not hire overweight people", with more in the obese group agreeing with this point. Ninety-four percent of the O group strongly agreed/agreed with the statements, "overweight people are physically unattractive", while 78% of the NW group agreed with this point ($p < 0.05$) (Table 2).

Practices between NW & O group

The NW group had higher scores on 5/6 high-fatty food habits (Q1-2 and Q6-9) and on avoiding sugar-containing food habits (Q10-11) than did the O group. However, there were only significant differences on 3 dietary practices (Table 3) ($p < 0.05$). The O group showed less control over portion size, fried foods and sugar-containing beverages.

The mean scores on four emotional eating patterns for the NW and O groups were 6.43 ± 0.52 and 7.94 ± 0.40 , respectively. A higher score represents worse emotional dietary practice. There was no significant difference on 3 emotional eating practices, but the O group had a higher score on the behavior, "you should celebrate or award you by eating" than did the NW group ($p < 0.05$) (Table 4).

Table 3. Scores obtained from general dietary practices between the NW and O group^{1,2}

Statement	NW group n = 46	O group n = 50
1. I cut the fatty parts off before eating meats.	2.46 ± 0.19	2.22 ± 0.18
2. I remove the oil from the surface before eating soup.	2.63 ± 0.17	2.38 ± 0.18
3. I can control your portion size of delicious foods.*	1.76 ± 0.13	1.42 ± 0.10
4. I feel guilty for eating too much.	1.83 ± 0.21	2.14 ± 0.18
5. I regularly eat 3 meals per day.	2.39 ± 0.18	2.00 ± 0.14
6. I eat rice or noodles with dishes juice.	2.80 ± 0.14	2.56 ± 0.14
7. I eat fatty meat.	2.41 ± 0.14	2.24 ± 0.15
8. I like to eat peanuts.	2.09 ± 0.13	2.26 ± 0.13
9. I like fried foods.*	2.33 ± 0.12	1.92 ± 0.15
10. I drink cola, spirits, etc. to replace water.*	2.72 ± 0.13	2.30 ± 0.15
11. I consume chocolate, ice cream, cake, etc.	2.22 ± 0.14	1.96 ± 0.12
12. I hold evening snack habit.	2.39 ± 0.15	2.28 ± 0.15
13. I have the habit of snacking between meals.	2.07 ± 0.17	1.94 ± 0.14
Total score	30.1 ± 0.95	27.6 ± 1.01

¹ Mean ± SE; Student's t test, * $p < 0.05$. ² Options included 5 scales ranging from never to always. In scoring statements, 1-5 that is positive statements, the most favorable response was assigned four points, the least favorable response zero points; 6-13 which are negative statements, counterpart score; Q1-2, Q6-9 represented high-fatty food habits and Q10-11 represented high-sugar food habits.

Table 4. Mean scores of emotional eating patterns between the NW and O groups.^{1,2}

Statement	NW group n = 46	O group n = 50
1. When you have nothing to do, you will eat food.	1.74 ± 0.17	2.06 ± 0.14
2. I will eat food when you feel bad.	1.35 ± 0.18	1.78 ± 0.18
3. I cannot eat more, when a bad thing will happen.	1.61 ± 0.18	1.98 ± 0.17
4. I celebrate or award yourself by eating.*	1.61 ± 0.18	2.12 ± 0.17
Total score*	6.43 ± 0.52	7.94 ± 0.40

¹ Mean ± SE; Student's t test, * $p < 0.05$. ² Options included 5 scales ranging from never to always. In scoring the statements, the most favorable response was assigned zero points, the least favorable response four points.

DISCUSSION

Body image

Hung and Cheng¹¹ and Wong and Huang¹² reported that more than 50% of younger females were dissatisfied with their body shape in Taiwan. In our study 47% of all women (45 / 96) had an inaccurate image of their bodies. More than two-thirds of the NW group had an inaccurate image of their bodies. The greater the dissatisfaction with body size, the more frequently undesirable weight control methods is used.^{13,14,15} Those NW women could become susceptible to nutritional imbalances if they were to continue being so obsessed with being slim. One-fourth of the O group believed themselves to be overweight or just right. We know obesity is related to chronic disease. These obese women need to know their actual weight but they do not know. Providing education and developing change models for NW and O groups to notice their own bodies are the first step for women's health.

Attitudes

There are differences in some attitude statements about overweight people between the NW and O groups. The O group considered obesity to be more unattractive and to lead to more difficulty in finding a job than did the NW group. Both groups showed a negative attitude on some statements related to obese people: i.e. overweight people are clumsy, lazy, unhealthy, and unattractive. This study agrees with those of Wadden and Stunkard,⁴ Harris,⁶ and Laura.⁷ Both groups had a tendency to reject obesity for aesthetic rather than medical reasons.

Practices

From this study, we know that the adults had higher score and represented better habits. The O group performed a higher scores on avoiding visible fat from diets (Q1-2) than the score of eating high-fatty foods (Q9) ($p>0.05$). The O group desired to consume sugar-containing foods (Q10-11) and to take snacks between meals (Q13). Energy-dense foods tend to be associated with high palatability and vice versa.^{16,17} Sensory enjoyment of dietary fat and sugar is directly related to the fact that both represent concentrated and available sources of energy. Whether obese individuals have different tastes than normal-weight individual's needs to be investigated in the future.

The O group should replace eating behavior when they feel excited. This supports Guinn's theory⁹: the role of eating behavior might be a balance for emotions. A controlled study failed to find that obese people were more emotionally disturbed than non-obese ones.¹⁸ Our data also support this point. Emotional eating behavior might not be an important characteristic for the O group in this study. More research addressing weight-related attitudes and behaviors among this population is called for.

In summary, the NW group had a more inaccurate perception of body size than did the O group. The obese group had a more negative concept of individual attitude statements to overweight people than did the NW group, but most statements showed no significant differences. The O and NW groups showed some differences in general eating practices. Education about accurate perceptions of what is normal weight and basic nutrition knowl-

edge about high-density foods for both groups is important for the future.

ACKNOWLEDGMENTS

This study was supported by grant DOH-086-TD068 from Department of Health, Taiwan. We are deeply grateful to the subjects who wrote the questionnaires.

REFERENCES

1. Vaughn B, Langlois H. Physical attractiveness as a correlate of peer status and social competence in preschool children. *Dev Psychol.* 1983;19:561-567.
2. Feldman W, Feldman E, Goodman JT. Culture vs. biology: children's attitudes toward thinness and fatness. *Pediatrics.* 1988;81:190-4.
3. Enzi G. The socioeconomic consequences of obesity: the effect of obesity on the individual. *Pharmacoeconomics.* 1994;5:54-7.
4. Wadden TA, Stunkard AJ. Psychopathology and obesity. *Ann N Y Acad Sci.* 1987;499:55-65.
5. Kumanyika S, Wilson JE, Guilford-Davenport M. Weight-related attitudes and behaviors of black women. *J Am Diet Assoc.* 1993;93:416-422.
6. Harris, MB. Eating habits, restraint, knowledge and attitudes toward obesity. *Intl. J Obes.* 1983;7:271-286.
7. Laura HM. Nutrition and non-nutrition majors have favorable attitude toward overweight people than personal overweight. *J Am Diet Assoc.* 1995;95:593-596.
8. Woolly SC, Garner DM. Obesity treatment: the high cost of false hope. *J Am Diet Assoc.* 1991;91:1248-1251.
9. Guinn B. Emotions and obesity among Mexican-American children. *J School Health.* 1985;55:23-30.
10. Nutrition and Health Survey in Taiwan NAHSIT 1993-1996. Department of Health, The Executive Yuan, R.O.C. 1999.
11. Hung C-T, Cheng S-H. Body image and eating behavior in young females at Taipei. *Chinese J Public Health.* 1992;11:316-327.
12. Wong YC, Huang Y-C. Obesity concerns, weight satisfaction and characteristics of female dieters: a study on female Taiwanese college students. *J Am Coll Nutr.* 1999; 18:194-200.
13. Polivy J, Garner DM, Garfinkel PE. Causes for thin female physiques. In CPHerman, M Zanna, ET Higgins.(Eds) "Physical appearance stigma & social behavior: The Ontario Symposium 1988; 3:101, Lawrence Erlbaum, New Jersey.
14. Wong YC. Female beauticians may be a high-risk group for developing eating disorders. *Nutr Res.* 2003;23:1297-1302.
15. Mortenson DM, Hoerr SL, Garner DM. Predictors of body satisfaction in college women. *J Am Diet Assoc.* 1993;93:1037-1039.
16. Drownowski A. Energy density, palatability, and satiety: implications for weight control. *Nutr Rev.* 1998;56:347-353.
17. Rolls BJ. Carbohydrates, fats and satiety. *Am J Clin Nutr.* 1995;61:960S-975S.
18. Crisp AH, Mc Guinness BJ. Fat: relation between obesity and psychoneurosis in a general population. *Br Med J.* 1976;1:7-9.

Original Article

Comparisons of attitudes and practices between obese and normal weight women in Taiwan

Shene-Pin Hu PhD, Tzu-Yin Chiang MS, Sung-Ling Yeh PhD and Yi-Wen Chien PhD

Dept of Nutrition and Health Science, Taipei Medical University, Taipei, Taiwan, ROC

比較臺灣肥胖與體重正常女性的態度與行為

本實驗從自我報告取得臺灣體重過重者之身體形像、態度及飲食行為等數據，比較體重正常和肥胖者的差異。50位肥胖與年齡相配的50名體重正常者參與本研究，書寫式問卷使用於實驗數據的收集，數據分析以簡單頻率與t檢驗之方法。結果發現大部分體重正常者覺得自己的體重比實際的重，體重正常組與肥胖組比較，體重認知錯誤的比率較高（72%與24%），不論正常體重或肥胖者對於過重的態度類似，但是部分態度的項目是有顯著差異，肥胖者較體重正常者喜歡吃油炸食物和喝甜的飲料。未來在營養教育上應該針對何為正常的體重與肥胖者的飲食原則的議題來進行更進一步的研究。

關鍵字：體重相關的態度、飲食習慣，體重正常、肥胖者、華人女性。