

WEIGHT GAIN EFFORTS AMONG MIDDLE SCHOOL AND JUNIOR HIGH STUDENTS IN SELECTED RURAL TEXAS SCHOOL DISTRICTS

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ABSTRACT

Three rural Texas school districts were studied to determine why, when, and how middle school and junior high students (n=468) decide to gain weight. The main reason to gain weight was to overcome thinness and thus improve physical appearance. Children as young as seven-years-old were making an effort to gain weight. The dominant method used was to consume more food. Inappropriate methods and reasons were occasionally involved with the attempt to gain weight.

Key words: adolescents, weight gain, body size. (Texas Journal of Rural Health 2003; 21(2): 42-50)

INTRODUCTION

Overweight children and adolescents have been the focus of contemporary research in recent years. Young people in this age group often view their weight inappropriately (Neumark-Sztainer, Story, Perry, & Casey, 1999; Neumark-Sztainer, Story, Falkner, Beuhring, & Resnick, 1999). Nevertheless, there are individuals in this age group that actually want to gain weight despite the majority view of trying to lose/maintain weight.

Smolak, Levine, & Thompson (2001) reported that both middle school and junior high students are influenced by sociocultural body ideals. Media images of perfect bodies, muscular photographs, organized athletic competition, and gender socialization are among the many variables that contribute to intense body dissatisfaction among adolescents. Cultural pressures to obtain an ideal body size and shape are communicated to young people in a powerful manner. Children as young as seven and eight years of age seem to have problematic attitudes and behaviors connected with eating (Hill & Bhatti, 1995).

In general, females want to be thinner, and males want to be leaner, taller, and more muscular (Neumark-Sztainer, Story, Falkner, et al., 1999). Previous studies have indicated that adolescent males place a greater value on physical effectiveness than physical appearance (Grant & Fodor, 1986). The most desired body shape for the male adolescent emphasizes muscle mass and physical bulk (McCreary & Sasse, 2000; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986). Current research has revealed several disturbing body image trends among young boys and men resulting in dangerous eating and exercise patterns, anabolic steroid use, and food/supplement abuse (Smolak et al., 2001; Pope & Katz, 1994). Therefore, it can be concluded that both adolescent males and females are discontent with their body weight and body composition.

Additional proof for this drive toward physical perfection and physical beautification were reported by Mishkind and colleagues (1986) who concluded that young men want to be muscular because they believed that women look for physical bulk in their ideal man. In contrast, high prevalence rates of dieting and disordered eating

behaviors among adolescent females have been reported in numerous studies (Neumark-Stainer, Story, Perry, et al., 1999; Peters et al., 1996).

Research has shown that the drive for gaining weight and trying to increase body size is relatively rare among females in the United States (McCreary & Sasse, 2000). Nevertheless, some females want to gain weight and increase muscle mass. Since most previous studies have focused on behaviors aimed at weight loss, this research study focuses on weight gain among both adolescent males and females. Relatively little has been written about the desire for increased body size among adolescents.

The purpose of this research is to study middle and junior high students (fifth to eighth grades) to determine why, how, and when weight gain efforts begin. Specifically, the following are studied: current weight classification, reasons to try to increase weight, methods to gain weight, and weight gain effectiveness. This research is important because of the relationship between body size and self-esteem. This research will build upon several former research studies that focused on disordered eating, unreasonable weight concerns, and other psychological variables impacting the adolescent population.

METHODS

Participants (n=468) were middle school and junior high students (fifth to eighth grades) from three school districts in central, rural Texas. The school districts were Lorena, McGregor, and Robinson, Texas. The population of these towns varied from 1,500 to 8,500 residents (Texas State Data Center, 1990). These school districts were chosen because of their ethnic and economic diver-

sity. Approximately 35% of the participants were Hispanic, 35% Caucasian, and 30% African-American. Approximately 15% of the group were classified as low income, 60% as middle income, and 25% as upper income.

The research project was reviewed and approved by the Human Subjects Research Committee at Baylor University. A parent or guardian of each student signed an informed consent form, which granted approval for their child to complete the research survey. All the students were volunteer subjects and they were told that they could participate anonymously.

SURVEY INSTRUMENT

A questionnaire designed to assess weight and height information, dieting practices, and weight satisfaction was completed by the middle school and junior high students. The questionnaire used in this study was developed from previously validated and published instruments from other studies involving adolescents (Koszweski & Kuo, 1996; Stewart, Olson, Goody, Tinsley, & Amos, 1994; Block, Hartman, & Naughton, 1990; Neumark-Sztainer, Story, Resnick, & Blum, 1998). Each section of the questionnaire was developed to illustrate the purpose, validity, and reliability of the instrument. The final instrument was reviewed by a child development specialist and nutrition education professionals to validate that the questions were at the appropriate reading level for this age group.

The questionnaire was a multiple-choice design with most questions having four or five options. In addition, the questionnaire contained open-ended questions on age, gender, current weight, height, and dieting behaviors. Specific information was also

collected on the reasons individuals begin a diet to gain weight, the methods used, and the age of the individual when the diets started. The survey required less than 15 minutes to complete. To decrease the focus on dieting, the questionnaire was titled, "Eating Habits Survey."

The questionnaires were delivered to the classroom teachers with instructions on standard data collection procedures. In each classroom the questionnaires were distributed during the scheduled class time and under the supervision of the teacher. Completed instruments were returned to the teacher and placed in sealed envelopes. The parental consent forms and the sealed envelopes were returned in bulk to the researchers. The classroom teachers indicated there was a 100% completion rate from both the middle and junior high students if the parent signed the consent form.

DATA ANALYSIS

Data were analyzed using the SPSS Windows computer system (SPSS Inc., 1997). The study was a descriptive as well as relational study. The independent variables were gender and age. The dependent variable was Body Mass Index classification (BMI).

The BMI was calculated on the basis of self-reported height and weight information. The BMI was derived from dividing the subject's weight in kilograms by the subject's height in meters squared (kg/m^2) (Samour, Helm, & Lang, 1999). Standardized percentile curves for BMI classifications have been developed and published for five-year-old to seventeen-year-old children from the United States (Hammer, Kraemer, Wilson, Ritter, & Dornbusch, 1997; Rosner, Prineas, Loggie & Daniels, 1998).

Frequency statistics were calculated for age, gender, weight gain methods, and weight gain behaviors. Pearson's Chi-Square test was performed to determine independence of gender, age, and weight gain intent. The data reported in this article focuses on why, when, and how these students made conscious decisions to gain weight.

RESULTS

Subjects ranged in age from 10 to 16 years of age (mean=12.2 years, with a standard deviation of 1.12). The sample included males (n=226) and females (n=242). The sample was approximately 35% Caucasian, 35% Hispanic, and 30% African-American. Among the subjects in this study who stated that they wanted to gain ten pounds or more, the average amount of weight actually gained was seven pounds with a range of 1 to 30 pounds.

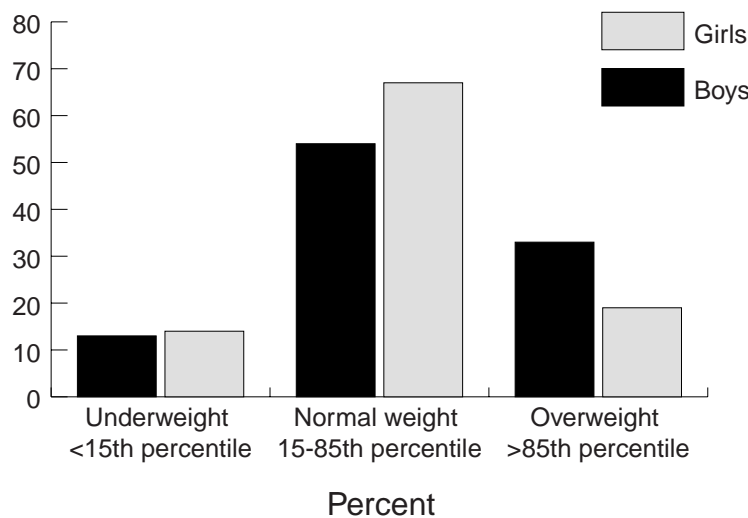
Figure 1 illustrates the distribution of

body weight classifications among all the students in this study. The mean BMI (kg/m²) for both males and females was 20.0, with a standard deviation of 4.2. Most of the students had normal weight classification. Fourteen percent of the females and 13% of the males were underweight based on self-reported height and weight data.

In this study, approximately 40% of the males (n=89) had tried to gain ten pounds or more. Surprisingly, 23% of the females (n=55) also indicated that they had tried to gain ten pounds or more at some point during their life. The age range for weight gain attempts was four to 14 years with an average age of 10.3 years and a standard deviation of two years (see Figure 2).

Among the subjects who wanted to gain weight, both genders followed the same age pattern. Weight gain efforts started between seven to nine years of age and increased momentum between 10 to 12 years. It is interesting to observe the general trend that

Figure 1. Body Mass Index Classifications of Middle School and Junior High Students



males focused on weight gain earlier in life compared to females.

There was a significant difference in body perception between females and males (Chi-square value = 8.01, $P=0.004$). The males were much more likely to want to gain weight than the females. The desire to gain weight was independent of age (Chi-square value = 1.95, $P=0.04$).

The two main reasons for both male and female middle school and junior high students to attempt weight gain were they felt they were too thin, and they wanted to gain muscle for sports participation. It is noteworthy that several of the remaining frequently stated reasons for weight gain were unhealthy (see Table 1). For example, 8% of this group felt parental pressure to gain weight and 5% reported that depression caused the weight gain.

Among the subjects who wanted to gain weight, 72% stated that they intentionally ate more food than they required. This may or

may not be a good decision depending on the food selected and the subjects' beginning weight. Almost one-fifth of the group was potentially forming bad eating habits by purposefully binge eating, eating at night, and overeating high calorie food. This research showed that collectively one-fourth of the group used inappropriate and potentially harmful weight gain strategies (purposeful overeating, sedentary living, protein powders, and on rare occasions, the use of prescription medicine). It is highly probable that the subjects wanted to increase their muscle mass and body strength, but they may unknowingly increase body fat by choosing these methods.

DISCUSSION

This study was conducted to determine when, why, and how middle school and junior high students attempt weight gain. The

Figure 2. Age of First Weight-Gain Effort

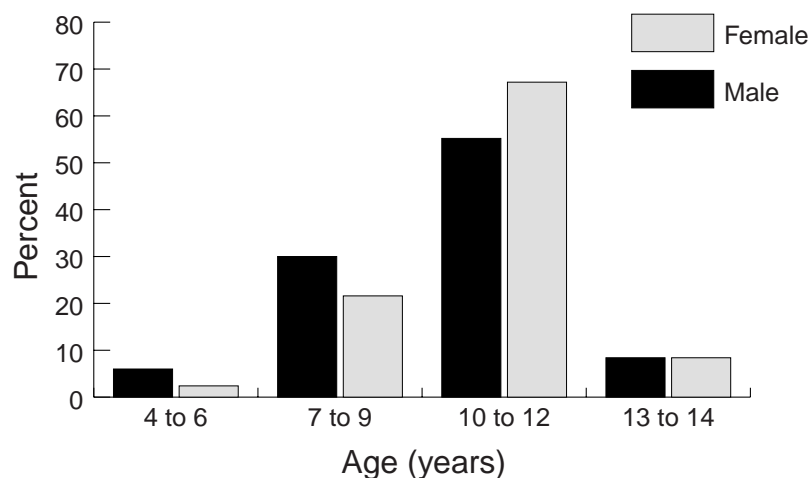


Table 1. Reasons to Begin Weight Gain Efforts

Too thin	58%
Sports, strength, muscle growth	20%
Sedentary living	8%
Parental opinion	8%
Depression	5%
Side effects of prescription medicine	1%
Total	100%

Table 2. Methods of Gaining Weight

Eat more food	72%
Binge, eat at night, overeat high calorie food	18%
Lift weights/exercise	3%
Sedentary living	3%
Use protein powders	3%
Side effects of prescription medicines	1%
Total	100%

findings in this study support the fact that individuals as young as seven to nine years of age were concerned about their body weight. Almost all of the subjects who attempted to gain weight in this study stated the reason they wanted to do so was because they thought they were too thin. This reflects the culture's unstated ideal body image of being lean and strong. Even though adolescent females may feel they are judged on how they look, adolescent males also feel pressure to have a specific (muscular) body profile (Smolak et al., 2001).

Paxton and colleagues (1991) studied "why" adolescent males and females (11 to 18 years) wanted a different body size. Adolescent males in their study reported that they

wanted to be physically fit because this was related to being successful in life and obtaining an increased number of dates. As expected, the majority of the adolescent females in their study reported that an ideal body shape was a thin figure (Paxton et al., 1991). Mutual peer role modeling and strong cultural body shape ideals were the reasons that both adolescent males and females felt intense body dissatisfaction.

Research usually focuses on weight loss efforts among females in western cultures. However, there are females that believe they are too thin and actually want to gain weight. Perhaps some females have been eating insufficient kilocalories and are now realizing that they need to eat more. Another explana-

tion could involve athletics and the need for extra muscle mass to compete successfully. In addition, some adolescent females are late to mature or they may wish to gain weight and grow taller to attain the same body size as their peers.

An unexpected finding from this study was the fact that even though only 13% of the males and 14% of the females in this study were classified as underweight based on BMI categories, 40% of the males and 23% of the females wanted to gain weight. This suggested that some of the normal weight subjects from both genders wanted to gain weight. This represented a departure from traditional research reports that usually indicate that adolescent females focus exclusively on weight loss (Paxton et al., 1991; Sands & Wardle, 2003).

This study was unique in respect to asking a direct question determining how much weight the subjects wanted to gain. Both females and males (who wanted to gain weight) indicated that on average they wanted to gain seven pounds. If these subjects would wait for teenage growth to occur, this would almost certainly be achieved within a few months or a few years.

O'Dea & Rawstorne (2001) reported results very similar to this data. Approximately 26% of the male adolescents in their study wanted to gain weight. The male subjects (on average) were successful at gaining about eight pounds. The reasons for their attempted gain were to increase muscle size, to build up the body, to have a better image, and to perform better in sports.

Findings from this study have implications for the development of effective wellness education materials. Adolescents need to be taught that just like the drive for thinness, the drive for weight gain and muscularity can have detrimental physical and psychological

consequences.

Research suggests that males who want to be larger tend to engage in binge eating, but they do not purge afterward (Grant & Fodor, 1986). The results from this study also indicate that both adolescent males and females, who wanted to gain weight, purposefully overate or binged. Weight gain acquired through increased caloric intake, alone, is likely to be body fat and not muscle mass. Increased body fat could create long-term physical and psychological problems.

Neumark-Sztainer, Story, Falkner, and colleagues (1999) studied a large sample of adolescent males and females (seventh to eleventh grades) from several ethnic groups. They discovered that a relatively high percentage of males (21%) ate more food or took food supplements for weight gain. In addition, a larger percentage of low socioeconomic status (SES) of both male and female adolescents reported these practices for the purpose of weight and muscle gain compared to middle and high SES groups. Hispanic females as well as females from multi-ethnic backgrounds were also more likely to report weight gain behaviors compared to Caucasian females.

The conclusions from this study as well as other research studies involving adolescent subjects suggest that the issue of appropriate body image is a much broader one than originally thought. Although the chief goal regarding adolescent body size is to "enhance physical appearance" the pathway to achieve this goal may differ considerably on an individual basis. Potentially inappropriate behaviors are involved with both attempts to increase as well as decrease body weight.

This study has enhanced our understanding of rural, middle school and junior high students in Texas. Weight manipulation efforts are prevalent and seem to exist across

both genders, most socioeconomic groups, BMI classifications, ethnic, and age groups. The results from this study suggest there is a continuing need to educate middle school and junior high students about health, normal growth, body weight, and healthy self-esteem development.

The data from this study is in agreement with Packard & Krogstrand (2002) who reported there is an ongoing need for education in both school and adolescent clinics, as well as parental education regarding normal growth and the normal body changes that occur during puberty.

Students as young as grade school age are sensitive to and are acquiring cultural messages about ideal body shapes. Furthermore, even at this young age, they desire to manipulate their body size and height by changing their food intake, exercise patterns, and other environmental choices. Therefore, this study has confirmed the need for continued research on the development of appropriate sociocultural values among children and adolescents.

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REFERENCES

- Block, G., Hartman, A. M., & Naughton, D. (1990). A reduced dietary questionnaire: Development and validation. *Epidemiology*, 1, 58-64.
- Grant, C. L. & Fodor, I. G. (1986). Adolescent attitudes toward body image and anorexic behavior. *Adolescence*, 21, 269-281.
- Hammer, L. D., Kraemer, H. C., Wilson, D. M., Ritter, P. L., & Dornbusch, S. M. (1997). Standardized percentile curves of Body Mass Index for children and adolescents. *American Journal of Clinical Nutrition*, 145, 259-263.
- Hill, A. J. & Bhatti, R. (1995). Body shape perception and dieting in preadolescent British Asian girls: links with eating disorders. *The International Journal of Eating Disorders*, 17, 175-183.
- Koszweski, W. M. & Kuo, M. (1996). Factors that influence the food consumption behavior and nutritional adequacy of college women. *Journal of the American Dietetic Association*, 96, 1286-1288.
- McCreary, D. R., & Sasse, D. K. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health*, 48, 297-305.
- Mishkind, M. E., Rodin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The embodiment of masculinity: Cultural, psychological, and behavioral dimensions. *American Behavioral Scientist*, 29, 545-562.
- Neumark-Sztainer, D., Story, M., Falkner, N. H., Beuhring, T., & Resnick, M. D. (1999). Sociodemographic and personal characteristics of adolescents engaged in weight loss and weight/muscle gain behaviors: Who is doing what? *Preventive Medicine*, 28, 40-50.
- Neumark-Sztainer, D., Story, M., Perry, C., & Casey, M. A. (1999). Factors influencing food choices of adolescents: Findings from focus-group discussions with adolescents. *Journal of the*

- American Dietetic Association*, 99, 929-934, 937.
- Neumark-Sztainer, D., Story, M., Resnick, M. D., & Blum, R. W. (1998). Lessons learned about adolescent nutrition from the Minnesota Adolescent Health Survey. *Journal of the American Dietetic Association*, 96, 1286-1288.
- O'Dea, J. A., & Rawstorne, P. R. (2001). Male adolescents identify their weight gain practices, reasons for desired weight gain, and sources of weight gain information. *Journal of the American Dietetic Association*, 101, 105-107.
- Packard, P. & Krogstrand, K. S. (2002). Half of rural girls aged 8 to 17 years report weight concerns and dietary changes, with both more prevalent with increased age. *Journal of the American Dietetic Association*, 102, 672-677.
- Paxton, S. J., Werthein, E. H., Gibbons, K., Szmukler, G. I., Hillier, L., & Petrovich, J. L. (1991). Body image satisfaction, dieting habits, and weight loss behaviors in adolescent girls and boys. *Journal of Youth and Adolescence*, 20, 361-379.
- Peters, P., Amos, R., Hoerr, S., Koszewski, W., Huang, Y., & Betts, N. (1996). Questionable dieting behaviors are used by young adults regardless of sex or student status. *Journal of the American Dietetic Association*, 96, 709-711.
- Pope, H., & Kats, D. (1994). Psychiatric and medical effects of anabolic-androgenic steroids: A controlled study of 160 athletes. *Archives of General Psychiatry*, 51, 375-382.
- Rosner, B., Prineas, R., Loggie, J., & Daniels, S. R. (1998). Percentiles for body mass index in United States children 5 to 17 years of age. *The Journal of Pediatrics*, 132, 211-222.
- Samour, P. Q., Helm, K. K. & Lang, C. E. (1999). *Handbook of pediatric nutrition*, 2nd Ed. Gathersburg, MD: Aspen Publishers.
- Sands, E. R. & Wardle, J. (2003). Internalization of ideal body shapes in 9-12 year-old girls. *The International Journal of Eating Disorders*, 33, 193-204.
- Smolak, L., Levine, M. P. & Thompson, J. K. (2001). The use of the sociocultural attitudes towards appearance questionnaire with middle school boys and girls. *The International Journal of Eating Disorders*, 29, 216-233.
- SPSS Inc. (1997). *SPSS for Windows: Release 8.0*. Chicago, IL: Author.
- Stewart, B., Olson, D., Goody, C., Tinsley, A., & Amos, R. (1994). Converting focus group data on food choices into a quantitative instrument. *Journal of Nutrition Education*, 26, 34-36.
- Texas State Data Center (1990). Official Texas map. [On-line]. Available: www.dot.state.tx.us.