



ACADEMIC EVALUATION OF GIRLS ON THE RUN CURRICULA

In the Spring of 2002, *Girls on the Run International* contracted with Rita Debate, Ph.D., MPH, CHES, assistant professor in the department of Health Behavior and Administration at UNC-Charlotte, to develop an evaluation tool entitled "Girls on the Run: An Assessment of Self-Esteem, Body Image and Eating Attitudes." We piloted that evaluation tool at several sites across the country.

Prior to running our pilot, Dr. Debate's review of the academic research in the area of girls and sports turned up two contradictory results. On the one hand, girls involved in athletics have higher self-esteem and engage in fewer risky behaviors than girls who are not. On the other hand, girls who become highly competitive in some sports (such as running, figure skating, gymnastics and other sports in which slim body images are admired) have a higher incidence of eating disorders than girls who are not involved in such sports. This poses a dilemma which – after running our pilot evaluation - Dr. Debate believes the Girls on the Run curricula may solve.

After the first phase of her evaluation (Spring 2002), Dr. Debate found that our curricula improve girls self-esteem, body image and eating attitudes to a "*statistically significant*" extent.

Dr. DeBate is continuing her research and evaluation of our program. A draft of her initial report, which she has submitted to a peer-reviewed journal, is attached.

GIRLS ON THE RUN® INTERNATIONAL

Evaluation Report

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Introduction

There is a wealth of evidence that underscores the physical and psychological benefits of sports participation among girls such as increased fitness and bone density, improved self-esteem, self-confidence, in addition to the decreased likelihood of the adoption of risky behaviors (Steiner, McQuivey, Pavelski, & Kramer, 2000; Sallis & Owen, 1999; Ferron, C., Narring, F., Caudey, M., Michaud, P.A., 1999; Steptoe & Butler, 1996; Calfas & Taylor, 1994). Conversely, numerous studies have found that participation in some types of sports may increase the risk of developing disordered eating attitudes and behaviors (Black, 1991; Davis, Kennedy, Ravelski & Dionne, 1994; Davison, Earnest, & Birch, 2002; Hulley & Hill, 2001; Sundgot-Borgen, 1994). For example, exercise and sport may increase preoccupation with appearance, which may in turn contribute to the predisposition and progression of eating disorders (Van De Loo, D.A., & Johnson, M.D., 1995, Davis et al., 1994).

Although disordered eating is observed in many subgroups of the population, athletes are *six times* more likely to develop disordered eating problems than the general population (Black, 1991). The President's Council on Physical Fitness and Sports (1997) estimates between 10-20% of female athletes have eating disorders. In the Women's Sports Foundation Report (Miller, Sabo, Melnick, Farrell, & Barnes, 2000) Health Risks and the Teen Athlete, it was reported that although fewer athletes than non-athletes described themselves as overweight (27% vs. 40%), and 48% of athletes reported trying to lose weight as compared to only 44% of non-athletes ($p < .01$). In addition, 8% of athletes reported vomiting, laxative use and taking diet pills.

Increased numbers of young people who diet may be cause for concern because dieting and weight concern have been found to promote the development of disordered eating in adolescence (Killen et al., 1996). The adolescent years are the time period when eating disorder symptoms most commonly occur (Lewinson et al., 2000), with more than 75% of individuals presenting with anorexia or bulimia during this stage in life (Kreipe & Birndorf, 2000).

It has been determined that eating disorders are *more prevalent among athletes* than non-athletes, *more prevalent in female athletes* than male athletes, and *more prevalent in sports which leanness* or a specified weight is considered important (Sundgot-Borgen, 1999). Kreipe and Birndorf (2000) describe predisposing factors in the development of eating disorders as being female; having a family history of eating disorders; being perfectionistic and eager to please others; having difficulty communicating negative emotions such as anger, sadness, or fear; difficulty resolving conflict and low self-esteem.

As with participation in sports, numerous factors have also been assessed in describing the possible causal factors of disordered eating behaviors among children and adolescents. White (2000) stated that biologic (dieting, obesity, overweight, or pubertal weight gain), psychological (body image dissatisfaction/distortions, low self-esteem, pre-morbid obsessive compulsive disorder, and child sexual abuse), family (parental attitudes and behaviors, parental comments regarding appearance, eating-disordered mothers, and misinformation about ideal weight), and socio-cultural risk factors (peer pressure regarding weight and eating, media, distorted images, and elite athletes) have all been found to be risk factors in the development of eating disorders.

It is important that a balance be created as to increase the positive effects of sports participation among girls while decreasing the possible negative consequences. As such, it is imperative that attention should be placed on evaluation of girls' athletic programs. These programs should be evaluated on their influences regarding the predisposing and perpetuating factors that may lead to the development of disordered eating such as communication

skills, conflict management, self-esteem, body image, dieting practices, and pressure to lose weight by coaches, and distorted images of elite athletes. The purpose of this study was to evaluate a running program geared for girls 8-12 years old to assess its influences regarding the biologic and psychological factors, which may lead to disordered eating among girls who participate in sports.

METHODS

Participants

Twenty-eight program sites representing five geographical locations in the U.S. were identified for participation representing a range of SES and metropolitan areas (See Table 1). Program sites consisted of a total of 377 program participants. Of those who participated in the pre-test (n=377), 322 also participated in the post-test (85.4%), 55 participants who participated in the pre-test were not available for post-test. Approximately two-thirds of the participants were Caucasian (63%) while 11.8% identified themselves as Latino, 3.7% as African-American, 2.8% Asian and 0.6% other. Mean age of participants was 10 years (SD=0.90). Parents of all participants signed a consent form prior to participating in the study. Approval for this study was granted by the primary investigator's university institutional review board.

Design

This evaluation study employed a cross-sectional pretest/posttest study design to examine the effectiveness of the 12-week program. Questionnaires were administered before the first program session T(1), and at the end of the last session T(2).

Measures

Measure of self-esteem was taken using the Rosenberg Self-Esteem Scale (Rosenberg, 1979). Coefficient alpha for the Rosenberg Self-Esteem Scale on this study population was .77, thus supporting Rosenberg's (1965) initial reliability statistics. This study obtained significant ($p < .001$) test-retest reliability coefficient of .57.

Body size satisfaction was measured utilizing the child/adolescent version of the silhouette rating scale (Collins, 1991). Using this measure, we asked the participants to choose which figure they thought looked most like their body size and which figure looked most like what they wanted to look like. Previous studies with children ages 5-11 have indicated accuracy of children identifying their own body size utilizing figural selections (Downey, Woodward, Pickles, & Skuse, 1995; Williamson & Delin, 2001).

A general measure of eating attitudes and behaviors was measured utilizing an adapted version of the Children's Eating Attitudes Test (ChEAT) (Maloney, McGuire, & Daniels, 1988). A factor analysis and Cronbach's alpha ($\alpha = .71$) were performed to determine construct validity and reliability. Construct validity was completed through principal axis factor analysis. Oblique and varimax rotations were performed to achieve simple structure. Three eigenvalues greater than 1.0 were extracted from the instrument, accounting for 40% of the variance. Each factor consisted of variables with practically significant loadings of .44 or greater. The extracted factors consisted of the following constructs: Dieting ($\alpha = .65$), Preoccupation with weight ($\alpha = .66$) and Pressure from others ($\alpha = .62$). Significant ($p < .001$) test-retest reliability coefficient of .62 was obtained from this study.

The Intervention Program

The *Girls on the Run* program is a 12-week (two one-hour sessions per week) experiential learning program for 8-12 year old girls that combines running (training for a 5k running event) with curriculum-based activities that encourage emotional, social, mental, and physical health in addition to character development. The mission of the program is to educate and prepare girls for a lifetime of self-respect and healthy living. The objectives of the curriculum include increasing self-esteem, body image and healthy eating attitudes. At each site, the program is implemented by a trained *Girls on the Run* program Coach. Coaches at all program sites followed the said program curriculum.

Statistical Analysis

Data were entered and analyzed using SPSS V10 statistical program for windows. Analysis included descriptive analysis in addition to paired-sample *t* tests.

Results

Statistical tests performed on self-esteem, body size satisfaction, and eating attitudes/behaviors demonstrated statistically significant improvements from baseline to post program (See Table 2).

Self-Esteem

A paired-samples *t* test was calculated to compare the mean pretest Self-esteem score of 21.37 (*sd* =3.11) to the mean posttest (post program) score of 23.52 (*sd* =2.99). A significant increase from pretest to posttest was found ($t(320)=-10.628, p<.05$). See Table 3 for a list of pre and post test results.

Body Size Satisfaction

Utilizing the children's figural stimuli rating scale described previously, 54.3% of preprogram and 41.9% of post program participants reported wanting to be smaller than their current size. Furthermore, 39.8% preprogram and 53.7% post program participants reported being satisfied with their current body size (See Table 4).

A paired-samples *t* test was calculated to compare the mean pretest Body Size Satisfaction score ($M = .74, sd=0.99$) to the mean posttest score ($M=.53, sd=0.84$). A significant decrease from pretest to posttest was found ($t(316)= 4.359, p<.05$).

Eating Attitudes/Behaviors

When examining the mean pretest Eating Attitude/Behavior scores ($M=10.53, sd=5.00$) and the mean posttest scores ($M=9.36, sd=4.92$) with a paired-samples *t* test, significant differences were found. A significant decrease from pretest to posttest was found ($t(321)= 4.806, p<.05$).

Percentages for pre/post program results regarding dieting behaviors include: "sometimes/always" eat diet foods (38.8% pretest, 34.5% posttest), "sometimes/always" aware of the calorie content in the foods that I eat (48.2% pretest, 39.7% posttest), "sometimes/always" think about burning up calories when I exercise (59.6%, 55.6%), "sometimes/always" dieting (19.5% pretest, 19.2%).

Percentages for pre/post program results regarding preoccupation with weight and pressure from others include: "sometimes/always" scared about being overweight (47.5% of participants pretest; 46.3% of participants posttest); "sometimes/always" thinking a lot about being thinner (50% pretest; 40% posttest); "sometimes/always" thinking a lot about having fat on their body (29.8% pretest; 25.5% posttest); "sometimes/always" feel that others pressure me to eat (17.4% pretest, 13.3% posttest), "sometimes/always" think that others would like for me to eat more (14.6% pretest, 17.7% posttest). Table 5 also depicts statistically significant improvements in eating attitudes/behaviors subscales.

Discussion

The primary aim of this evaluation was to assess the impact of a combination running program/wellness curriculum, *Girls on the Run*, on self-esteem, body size satisfaction, and eating attitudes/behaviors. The findings of this evaluation indicate that over the 12-week study period sport training supplemented with the wellness curriculum resulted in significant changes in all three of the noted areas for the participants.

Our finding that female adolescents who participated in the curriculum based running program had positive impacts on self-esteem is consistent with previous research on adolescent sport participation (Steiner et al., 2000; Steptoe & Butler, 1996). This is of critical importance because self-esteem has been recognized as an important factor in health behavior and is also a crucial component in adolescent development (Pesa, 1999). Low self-esteem has been linked to poor body image in overweight females (Pesa, Syre, & Jones, 2000) and also to eating disorders (Vohs, Joiner, Bardine, Abramson, & Heatherton, 1999). Programs which positively impact self-esteem in young females may improve self-concept, body image, and also prevent eating disorders.

Based on pretest results, one-half of the girls reported a desire to be thinner, exactly the same percentage that was found among Australian 8 to 12-year old females (Rolland, Farnill, & Griffiths, 1997). In fact, on numerous occasions it has been reported that many young girls prefer a thinner body size as compared to their current size (Collins, 1991; Gustafson-Larson & Terry, 1992; Thompson, Corwin, & Sargent, 1997; Williamson & Delin, 2001).

Completion of this intervention reduced the discrepancy between current and ideal body size, thus decreasing body size dissatisfaction. Researchers have reported that body dissatisfaction is predictive of eating disorder symptoms in adolescent girls (Attie & Brooks-Gunn, 1989; Killen et al., 1994); therefore, prevention programs for girls should address body image and size dissatisfaction as did the present curriculum.

The significant improvements in eating attitudes/behaviors we found when comparing pretest/posttest scores are also noteworthy. After program completion, participants reported lower rates of dieting behaviors, less preoccupation with body weight, and less pressure from others regarding eating. Early adolescence is a difficult transition for girls; one which also marks an increase in weight control behaviors (Smolak & Levine, 1996). A sport training program which is supplemented with a wellness curriculum may be an effective primary prevention program for eating disorders.

Implications for Prevention

It is evident that a "fine line" may exist which separates the benefits of sport participation among girls from the possible risks. As we encourage our children to become more physically active as to reap the positive effects, we must also provide programs which address the development of the many identified risks. According to Grigg, Bowman, and Redman (1996), disordered eating in adolescent females suggests the need for preventive programs, which encourage appropriate eating and dieting behaviors. Educational interventions targeting younger at-risk adolescents may be more likely to reduce the problem, but as long as society continues to attach a stigma to obesity and reward restrictive eating/dieting practices, the problem may remain (Grigg et al., 1996).

A multitude of issues need to be addressed in prevention programs. Prevention programs need to differ depending on the age of the recipients. Elementary school-aged girls have been found to have concerns correlated with peer pressure on weight and eating (Taylor et al., 1998). Once in middle school, girls report concern related to pressure from peers, self-confidence, body size, trying to emulate females in the media, and being teased about weight (Taylor et al., 1998). Because dieting concerns often become more intense for girls as the middle school years progress (Smolak, Levine, & Gralen, 1993) it is critical that intervention programs be planned for the late elementary or early middle school years. Successful interventions will also be culturally appropriate and sensitive to the concerns of preadolescent girls.

Limitations

Although significant improvements were noted in self-esteem, body size satisfaction, and eating attitudes/behaviors among participants over the 12-week period, we cannot make reference to the persistence of these changes over time. While knowledge, attitude, and behavioral changes are important first steps in the prevention of eating disorders (Smolak, 1999), an outcome evaluation at a later point in time is needed to determine the true efficacy of this program.

Table 1: Demographic Variables

| Variable | F(%) |
|---|----------------------|
| Girls on the Run Program Sites and Participants | |
| • Wisconsin | 9 (2.8) |
| • Connecticut | 16(5.0) |
| • Boise, ID | 29(9.0) |
| • Chicago, IL | 30(9.3) |
| • Holland, MI | 238(73.9) |
| Total Participants | 322 |
| Race of Participant | |
| • White | 203(63.0) |
| • African-American | 12(3.7) |
| • Asian | 9(2.8) |
| • Latino | 38(11.8) |
| • Other | 2(0.6) |
| Year of Birth | |
| • 1989 | 1(0.3) |
| • 1990 | 19(5.9) |
| • 1991 | 80(24.8) |
| • 1992 | 114(35.4) |
| • 1993 | 68(21.1) |
| • 1994 | 1(0.3) |
| Age | M(sd) 10.18(0.90) |

Table 2: Self-Esteem Variable Frequencies and Percents

| Variable | | Strongly Agree F(%) | Agree F(%) | Disagree F(%) | Strongly Disagree F(%) | Mrank | Z |
|--|--------|------------------------|---------------|------------------|---------------------------|-------|---------|
| On the whole, I am satisfied with myself | | | | | | | |
| | • Pre | 113(35.1) | 176(54.7) | 25(7.8) | 8(2.5) | 71.29 | 2.399* |
| | • Post | 138(42.9) | 158(49.1) | 19(5.9) | 7(2.2) | 71.82 | |
| At times I think I am no good at all | | | | | | | |
| | • Pre | 33(10.2) | 125(38.8) | 108(33.5) | 56(17.4) | 93.16 | 2.106* |
| | • Post | 31(9.6) | 110(34.2) | 102(31.7) | 79(24.5) | 96.35 | |
| I feel that I have a number of good qualities | | | | | | | |
| | • Pre | 133(41.3) | 165(51.2) | 22(6.8) | 2(0.6) | 66.26 | 1.042 |
| | • Post | 148(46.0) | 155(48.1) | 11(3.4) | 8(2.5) | 72.63 | |
| I am able to do things as well as most other people | | | | | | | |
| | • Pre | 95(29.5) | 161(50.0) | 53(16.5) | 13(4.0) | 79.88 | 1.700 |
| | • Post | 112(34.8) | 158(49.1) | 36(11.2) | 16(5.0) | 87.57 | |
| I feel that I do not have much to be proud of | | | | | | | |
| | • Pre | 26(8.1) | 25(7.8) | 108(33.6) | 163(50.5) | 70.52 | 1.534 |
| | • Post | 18(5.6) | 16(8.1) | 100(31.1) | 178(55.3) | 70.49 | |
| I certainly fell useless at times | | | | | | | |
| | • Pre | 32(9.9) | 110(34.2) | 107(33.2) | 73(22.7) | 82.14 | 1.788 |
| | • Post | 33(10.2) | 94(29.2) | 100(31.1) | 95(29.5) | 90.04 | |
| I feel that I am a person of worth, at least on an equal plane with others | | | | | | | |
| | • Pre | 109(33.9) | 170(52.8) | 28(8.7) | 15(4.7) | 79.40 | 2.761* |
| | • Post | 145(45.0) | 140(43.5) | 21(6.5) | 16(5.0) | 82.32 | |
| I wish I could have more respect for myself | | | | | | | |
| | • Pre | 81(25.2) | 110(34.2) | 79(24.5) | 52(16.1) | 94.37 | 3.676** |
| | • Post | 57(17.7) | 100(31.1) | 87(27.0) | 78(24.4) | 97.70 | |
| All in all, I am inclined to feel that I am a failure | | | | | | | |
| | • Pre | 23(7.1) | 36(11.2) | 78(24.2) | 185(57.5) | 66.87 | 2.370* |
| | • Post | 15(4.7) | 25(7.8) | 79(24.5) | 203(63.0) | 64.67 | |
| I take a positive attitude toward myself | | | | | | | |
| | • | 124(38.5) | 149(46.3) | 32(9.9) | 17(5.3) | 73.50 | 1.930 |
| | • | 143(44.4) | 141(43.8) | 20(6.2) | 18(5.6) | 79.69 | |

*p<.05, **p<.001

Table 3: Frequencies and Percents of Eating Attitudes Among Study Participants

| Variable | Never F(%) | Rarely F(%) | Sometimes F(%) | Always F(%) | <i>M</i> rank | <i>Z</i> |
|---|---------------|----------------|-------------------|----------------|---------------|----------|
| I am scared about being overweight | | | | | | |
| • Pre | 94(29.2) | 75(23.3) | 111(34.5) | 42(13.0) | 78.51 | 1.417 |
| • Post | 99(30.7) | 74(23.0) | 123(38.2) | 26(8.1) | 83.20 | |
| I stay away from eating when I am hungry | | | | | | |
| • Pre | 139(43.2) | 83(25.8) | 91(28.3) | 9(2.8) | 77.55 | 2.262* |
| • Post | 154(47.8) | 88(27.3) | 76(23.6) | 4(1.2) | 73.77 | |
| I am aware of the calorie content in the foods that I eat | | | | | | |
| • Pre | 98(30.4) | 69(21.4) | 111(34.5) | 44(13.7) | 96.32 | 2.422* |
| • Post | 107(33.2) | 87(27.0) | 98(30.4) | 30(9.3) | 88.45 | |
| I feel that others would like me to eat more | | | | | | |
| • Pre | 224(69.6) | 51(15.8) | 30(9.3) | 17(5.3) | 65.50 | 1.439 |
| • Post | 206(64.0) | 59(18.3) | 42(13.0) | 15(4.7) | 58.82 | |
| I think a lot about wanting to be thinner | | | | | | |
| • Pre | 103(32.0) | 58(18.0) | 82(25.5) | 79(24.5) | 82.52 | 3.082* |
| • Post | 102(31.7) | 91(28.3) | 80(24.8) | 49(15.2) | 75.95 | |
| I think about burning up energy when I exercise | | | | | | |
| • Pre | 63(19.6) | 67(20.8) | 107(33.2) | 85(26.4) | 106.87 | 1.943 |
| • Post | 69(21.4) | 74(23.0) | 125(38.8) | 54(16.8) | 101.46 | |
| I think a lot about having fat on my body | | | | | | |
| • Pre | 151(46.9) | 75(23.3) | 75(23.3) | 21(6.5) | 76.68 | .469 |
| • Post | 147(45.7) | 93(28.9) | 57(17.7) | 25(7.8) | 74.25 | |
| I eat diet foods | | | | | | |
| • Pre | 127(39.4) | 70(21.7) | 114(35.4) | 11(3.4) | 79.34 | 1.028 |
| • Post | 128(39.8) | 83(25.8) | 105(32.6) | 8(1.9) | 72.33 | |
| I feel that others pressure me to eat | | | | | | |
| • Pre | 154(47.8) | 112(34.8) | 35(10.9) | 21(6.5) | 82.21 | 4.844** |
| • Post | 231(71.4) | 48(14.9) | 30(9.3) | 13(4.0) | 90.57 | |
| I have been dieting | | | | | | |
| • Pre | 167(51.9) | 92(28.6) | 50(15.5) | 13(4.0) | 63.92 | 2.848* |
| • Post | 215(66.8) | 45(14.0) | 51(15.8) | 11(3.4) | 81.83 | |

* p<.05, **p<.001

Table 4: Body Dissatisfaction Among Study Participants

| | Pre-test F(%) | Post-test F(%) | p-value |
|--------------------------------------|------------------|-------------------|---------|
| No body dissatisfaction ¹ | 128(39.8) | 173(53.7) | <.001* |
| Desires to be larger ² | 19(5.9) | 9(2.8) | |
| Desires to be smaller ³ | 175(54.3) | 135(41.9) | |

* Statistics are significant if $p < .05$

¹ Perceived-Desired=0

² Perceived-Desired<0

³ Perceived-Desired>0

Table 5. Mean scores for Self-esteem, Eating Attitudes/Behaviors, and Body Size Satisfaction Pre and Post Program

| Variable | Pretest M (SD) | Posttest M (SD) | t | df |
|--|-------------------|--------------------|-----------|-----|
| Self-Esteem | 21.37(3.11) | 23.52(2.99) | -10.628** | 320 |
| Eating Attitudes/Behaviors | 10.53(5.00) | 9.36(4.92) | 4.806** | 321 |
| • Dieting ¹ | 5.63(3.05) | 4.98(2.92) | 4.204** | 321 |
| • Preoccupation with weight ² | 3.63(2.55) | 3.35(2.43) | 2.344* | 321 |
| • Pressure from others ³ | 1.26(1.43) | 1.04(1.53) | 2.446* | 321 |
| Body Size Satisfaction | .74(0.99) | .53(0.84) | 4.359** | 316 |

* $p < .05$, ** $p < .001$

¹ Values between 0-15, higher values indicating greater dieting behaviors

I stay away from eating when I am hungry

I think about burning up calories when I exercise

I eat diet foods

I have been dieting

I am aware of the calorie content in the foods that I eat

² Values between 0-9, higher values indicating greater preoccupation with weight

I am scared about being overweight

I think a lot about having fat on my body

I think a lot about wanting to be thinner

³ Values between 0-6, higher valued indicating greater pressure from others

I think that others would like for me to eat more

I feel that others pressure me to eat

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