

Weight Criticism During Physical Activity, Coping Skills, and Reported Physical Activity in Children

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ABSTRACT. *Objective.* National health guidelines advocate increased physical activity in children and adolescents, but specific goals are not being achieved. Data are needed on variables that influence children's decision to be active or sedentary.

Methods. We tested the association of weight criticism during physical activity (WCA) with attitudes toward physical activity and reported physical activity levels in children. We also tested whether these associations were moderated by children's ability to cope with weight criticism. Subjects were 576 fifth- through eighth-graders who completed a questionnaire on physical activity patterns, weight criticism history, and coping skills.

Results. WCA was more common among girls than boys and among heavier children. In multiple regression analyses, WCA was associated with reduced sports enjoyment, perceived activity compared with peers, and mild-intensity leisure activity. These associations, however, were moderated by problem-focused coping skills such that the relationships were attenuated in children who were better able to cope with weight criticism. Avoidant coping skills also moderated the relationship between WCA and sports enjoyment.

Conclusions. Children who are the targets of weight criticism by family and peers have negative attitudes toward sports and report reduced physical activity levels, although these relationships may be buffered by certain coping skills. Assessing WCA and related coping skills may be clinically useful for identifying barriers to physical activity in certain children (eg, the obese) and may be a potential target for interventions. *Pediatrics* 2002;110(2). URL: <http://www.pediatrics.org/cgi/content/full/110/2/e23>; physical activity, children, obesity, teasing, coping skills.

ABBREVIATIONS. WCA, weight criticism during physical activity; SD, standard deviation; BMI, body mass index; CCSC, Children's Coping Strategies Checklist; METS, metabolic-equivalent units.

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National health guidelines advocate increased physical activity in children and adolescents.¹ This mandate stems from studies documenting the health benefits of physical activity^{2,3} plus the increasing prevalence of pediatric obesity.⁴ However, many children did not meet the physical activity prescriptions mandated by Healthy People 2000.^{5,6} A national survey found that fewer than 25% of surveyed children participate in at least 30 minutes per day of any type of physical activity.⁶ Physical activity levels steadily decrease throughout adolescence,⁵ perhaps more so among girls than boys.⁷ Finally, the increasing prevalence of pediatric obesity⁴ further suggests that physical activity may not be increasing to desired levels. Promoting physical activity may be especially important for treating obese children.^{8,9}

To promote physical activity better, greater information is needed on the development of physical activity patterns and preferences.^{10,11} To this end, an expert panel on physical inactivity called on research that addressed "factors that facilitate both adoption and maintenance of activity by women and men of all ages [including] enjoyability and controllability, decision-making processes that influence a person's being active or sedentary, and social influences such as support and reinforcement."¹² The American Academy of Pediatrics adopted a similar policy statement for clinical practice,^{13,14} calling on pediatricians to assess social and environmental factors that facilitate or impede physical activity in young children. Finally, behavioral economics research strives to understand factors that influence the reinforcing value of physical activity so that more effective interventions can be developed.¹⁵

One factor that might reduce children's tendency to be physically active—and that is a focus of this study—is weight criticism during physical activity (WCA). WCA is defined as verbal comments directed toward a child, in sports or physical activity settings, that condescend or ridicule the child's weight. Other investigators have used the term "negative verbal commentary."¹⁶ WCA was studied for several reasons. First, there are pervasive weight-related prejudices among children,^{17,18} suggesting that WCA might also be commonplace. Second, weight criticism is associated with poorer self-esteem and body image,^{16,19} lending plausibility to the notion that WCA might be associated with behaviors such as physical inactivity. Third, peer support (or a

lack thereof) may influence children's physical activity levels.^{10,11} Finally, this issue has potential relevance for school-based interventions given the Center for Disease Control and Prevention's mandate to "provide physical and social environments that encourage and enable safe and enjoyable physical activity."⁵ For these reasons, the first aim of this study was to test the association of WCA with sports enjoyment and reported activity levels in a pediatric sample.

A second aim of this study was to test whether certain types of coping skills moderate the relationships between WCA and physical activity enjoyment and activity levels. Coping skills might moderate these relationships in 2 different ways: as "effective" or "ineffective" moderators. For "effective" coping strategies, the relationship between WCA and physical activity enjoyment and activity levels would attenuate at increasing levels of the coping strategy. That is, the coping skill would mute the relationship. In contrast, for "ineffective" coping strategies, the relationship between WCA and sports enjoyment and activity level would amplify at increasing levels of the coping strategy.

Moderating effects of certain types of coping skills have been well-documented in adults, and a comparable literature is emerging for children.^{20–23} For example, Sandler et al²² found that active coping skills moderate the relationships between stress and conduct disorder in a sample of children of divorce. They found that children of divorce who used fewer active coping strategies (ie, fewer problem solving and positive cognitive restructuring coping strategies) had significantly higher acting-out behavior at higher levels of stress. Similarly, Gonzales et al²¹ found a classic "stress buffering" effect for urban middle school girls in which their use of active coping strategies and distraction coping strategies buffered the effects of family stress. In each of these studies, active coping strategies attenuated the relationship between stress and symptomatology. In contrast, the use of avoidance coping strategies is typically associated with poorer psychological adjustment²⁴ and typically increases as control over the stressor decreases.^{25–27} However, avoidant coping strategies have been found to be associated with better behavioral outcomes when a stressor is

viewed as an uncontrollable stressor.^{27,28} Thus, how a child perceives WCA could have an impact on the relationship between use of avoidant coping strategies and physical enjoyment and activity levels.

In a sample of middle school students, we hypothesized that greater WCA would be associated with reduced sports enjoyment, less perceived activity compared with peers, and reduced leisure-time physical activity. On the basis of previous findings, we predicted that problem-focused coping and cognitive restructuring coping skills would attenuate the negative relationship between WCA and physical activity outcomes (ie, they would be effective coping strategies). We predicted that avoidant coping skills would amplify the negative relationship between WCA and physical activity outcomes (ie, they would be ineffective coping strategies).

METHODS

Participants

Participants were 576 fifth- through eighth-graders (269 boys, 305 girls, and 2 gender unspecified) who attended a public middle school in New York. The mean age of the sample was 11.6 years (standard deviation [SD] = 1.24). The sample included 181 fifth-graders, 147 sixth-graders, 118 seventh-graders, and 130 eighth-graders. The majority of students were white (87.2%), followed by Hispanic (7.6%), Asian (2.6%), and black (1.2%), with 1.4% unidentified. Descriptive data on the sample are presented in Table 1 by gender.

Two weeks before the in-class survey, students were given permission slips and letters for parents describing the survey. The overall response rate for the sample was 82%. Students took approximately 30 minutes to complete the survey, during which time teachers answered any questions. Pilot testing indicated that the time requirements and questionnaire length were acceptable to teachers and students. Study approval was obtained by the local school district authorities.

Measures

Demographics

Age, gender (0 = girls; 1 = boys), grade, and race were self-reported. Ethnicity was coded as white, black, Asian, Hispanic, or other.

Body Mass Index (BMI)

Participants self-reported their height and weight, which were converted to BMI. BMI is a commonly used index of weight adjusted for height, correlates reasonably well with laboratory measures of adiposity for pediatric samples,²⁹ and is extremely reliable.³⁰ Despite reporting biases, self-reported BMI is valid in children and adolescents for group-level analyses. Correlations

TABLE 1. Sample Characteristics by Gender

Variables	Girls (Mean ± SD)	Boys (Mean ± SD)	P
Age (y)	11.63 ± 1.22	11.62 ± 1.27	.92
Height (cm)	152.01 ± 12.08	153.23 ± 13.01	-.24
Weight (kg)	43.6 ± 11.55	46.94 ± 14.45	.002
BMI (kg/m ²)	19.02 ± 3.76	19.92 ± 4.54	.009
General weight criticism	0.33 ± 0.0054	0.33 ± 0.0056	
WCA	1.94 ± 0.25	1.87 ± 0.23	.0005
Sports enjoyment	29.20 ± 15.18	39.06 ± 13.07	<.0001
Perceived activity vs peers	3.09 ± 0.97	3.54 ± 1.07	<.0001
METS: mild-intensity leisure activity	2.26 ± 1.39	2.14 ± 1.49	.32
METS: moderate-intensity leisure activity	5.32 ± 2.06	5.01 ± 2.45	.10
METS: strenuous-intensity leisure activity	7.34 ± 2.86	8.80 ± 2.82	<.0001
Problem-focused coping	4.63 ± 1.3	4.89 ± 1.4	.02
Cognitive restructuring coping	5.11 ± 1.4	5.40 ± 1.5	.02
Avoidant coping	9.74 ± 2.1	9.2 ± 2.3	.02

between measured and reported weight exceed 0.80³⁰ and 0.90 in some studies.^{31–33}

General Weight Criticism History

History of general weight criticism, not necessarily occurring during sports or physical activity, was assessed by the Perceptions of Teasing Scale.¹⁶ This 6-item instrument measures frequency of criticism by peers concerning weight and body, with higher scores representing a greater criticism history. This instrument is internally consistency (Cronbach's $\alpha = 0.94$) and has been validated against psychological measures.³⁴ The wording of certain items was changed slightly to make them more age-appropriate for this study sample.

WCA

Using the Perceptions of Teasing Scale as a prototype, we developed a 6-item instrument to measure weight criticism occurring specifically during sports and physical activity, with higher scores indicating a greater criticism history. Cronbach's α for the WCA scale was 0.83 in the present sample. WCA and general weight criticism were moderately correlated across all subjects ($r = 0.40, P < .0001$).

Coping With Weight Criticism

We adapted an existing questionnaire, the Children's Coping Strategies Checklist-Revision 1 (CCSC),^{35,36} to measure coping skills for weight criticism during the previous 3 months. The CCSC measures 3 types of coping: problem-focused coping (9 items), cognitive restructuring (9 items), and avoidant coping (12 items). Problem-focused coping refers to active efforts to understand the situation and make mental and behavioral strategies to handle the situation when it occurs. Cognitive restructuring refers to mental efforts to think optimistically in the face of the situation while maintaining a positive outlook and feeling in control. Avoidant coping refers to repression, wishful thinking, and behavioral avoidance of the situation.

The CCSC was theoretically derived and has been used elsewhere.^{22,35} Its factor structure has been supported by confirmatory factor analytic studies.²⁰ For the present study, we adapted the instructions so that the questionnaire specifically reflects ability to cope with weight criticism.

Sports Enjoyment Questionnaire

The Sports Enjoyment Questionnaire³⁷, a 5-item questionnaire, measures the extent to which respondents find sports participation enjoyable, with higher scores reflecting greater sports enjoyment. The instrument is internally consistent (Cronbach's $\alpha = 0.84$).³⁷ Sports enjoyment correlates with reported sports participation in children.^{38,39}

Activity Rating Scale

The Activity Rating Scale⁴⁰ provides a global index of perceived overall activity relative to peers. Participants responded to the question, "Compared with other kids your age and sex, how much physical activity do you get?" with responses ranging from 1 (much less) to 5 (much more). The scale has a 7-day test-retest reliability of $r = 0.89$.⁴¹ In validation studies with children, the instrument correlated in expected directions with BMI, heart rate measured during fitness test,³⁹ and other physical activity questionnaires.⁴¹

Godin-Shepard Physical Activity Survey

The Godin-Shepard Physical Activity Survey,^{42,43} a brief self-report inventory, measures the frequency with which subjects engage in light-, moderate-, and strenuous-intensity activities during a 1-week period. These numbers are converted to metabolic-equivalent units (METs; 1 MET is roughly equivalent to the energy expended during quiet seat rest, or an oxygen intake of 3.5 mL/kg body wt/min). The instrument has a 2-week test-retest reliability of $r = 0.81$ in children⁴¹ and was validated in a study of swimmers.⁴⁴

Statistical Methods

First, correlational analyses tested the associations of general weight criticism and WCA with demographic variables (age, gen-

der, and BMI). Next, study hypotheses were tested by simultaneous multiple regression analyses. Three sets of regression analyses were conducted for each of the 5 outcome measures (sports enjoyment, activity compared with peers, METs during mild-intensity activity, METs during moderate-intensity activity, and METs during strenuous-intensity activity). The 3 sets of analyses tested the moderating effects of problem-focused coping, cognitive restructuring, and avoidant coping, respectively. Thus, the models were identical with the exception of the specific coping skill being tested:

$$Y = b_0 + b_1(\text{age}) + b_2(\text{gender}) + b_3(\text{BMI}) + b_4(\text{GWC}) + b_5(\text{WCA}) + b_6(\text{Cope}) + b_7(\text{Cope} * \text{WCA}) + e;$$

where GWC is general weight criticism, Cope is the specific coping skill being tested, and Cope*WCA is the interaction between the given coping skill and WCA.

Our hypotheses predicted significant effects for coefficients b_5 and b_7 . Significant interactions were probed using the methods outlined by Aiken and West.⁴⁵ Specifically, we used β -coefficients from the regression model to plot the 4 predicted scores for subjects who were 1 SD above and below the mean for WCA and the respective coping scale. These 4 scores provided the coordinates to plot interactions.

Preliminary analyses indicated no interactions between WCA and gender for any of the outcome variables. Thus, we pooled boys and girls in the present report. Because several variables were positively skewed (WCA, general weight criticism, sports enjoyment, mild-intensity activity, moderate-intensity activity, and strenuous-intensity activity), we applied a Box-Cox transformation⁴⁶ to reduce the degree of skewness. The transformed variables were highly correlated with the untransformed variables (all $r > 0.90$). All P values were obtained based on 2-sided .05 significance levels.

RESULTS

Correlates of General Weight Criticism and WCA

General weight criticism was significantly associated with BMI ($r = 0.46, P < .001$) but neither age ($r = 0.03$) nor gender ($r = 0.01$). WCA was significantly associated with gender ($r = -0.14, P < .01$) and BMI ($r = 0.15, P < .01$) but not with age ($r = 0.01$). Thus, WCA was more common among girls than boys and among heavier children.

Multiple Regression Analyses

Sports Enjoyment

Increased WCA was significantly associated with reduced sports enjoyment across all 3 regression models (Table 2). It is interesting that general weight criticism consistently showed positive associations with sports enjoyment. WCA significantly interacted with problem-focused coping ($P = .001$) and avoidant coping ($P = .02$). Specifically, the negative association between WCA and sports enjoyment was attenuated among children with better problem-focused (Fig 1A) and avoidant coping skills (Fig 1B).

Activity Compared With Peers

Increased WCA was significantly associated with reduced sports enjoyment across the 3 regression analyses (Table 3). The interaction between WCA and problem-focused coping skills approached significance ($P = .08$). Specifically, the negative association between WCA and activity compared with peers was attenuated among children with better problem-focused coping skills (Fig 2).

TABLE 2. Summary of Sports Enjoyment Regression Models

Predictor Variable	Moderator		
	Problem-Focused Coping $\beta(t; P \text{ Value})$	Cognitive Restructuring $\beta(t; P \text{ Value})$	Avoidant Coping $\beta(t; P \text{ Value})$
Age	0.02 (0.44; .66)	-0.01 (.02; .98)	0.00 (0.07; .95)
Gender	0.28 (7.08; <.0001)	0.29 (7.08; <.0001)	0.30 (7.43; <.0001)
BMI	-0.11 (-2.41; .02)	-0.11 (-2.28; .02)	-0.11 (-2.35; .02)
GWC	0.14 (2.89; .004)	0.15 (2.92; .004)	0.16 (3.12; .002)
Coping	-0.89 (-2.91; .004)	0.03 (.11; .91)	-0.81 (-2.39; .02)
WCA	-0.77 (-5.57; <.0001)	-0.34 (-2.13; <.03)	-0.83 (-4.06; <.0001)
Coping * WCA	1.14 (3.46; .001)	0.04 (.11; .92)	1.04 (2.51; .02)
Overall regression model: F and P values	F = 22.76, P < .0001	F = 18.34, P < .0001	F = 19.05, P < .0001
Overall regression model: R ²	0.25	0.21	.21

GWC indicates general weight criticism; β , standardized β weight.

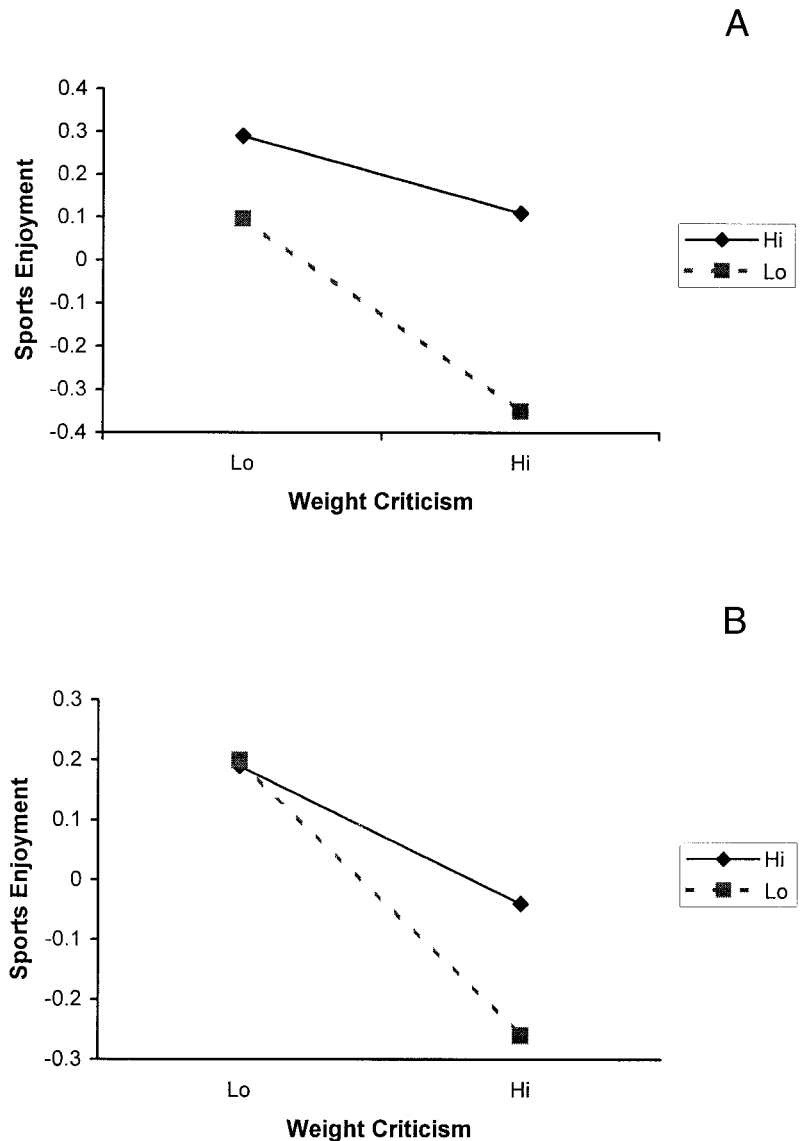


Fig 1. Relationship between sports enjoyment and WCA for children “high” and “low” in problem-focused coping skills (A) and avoidant coping skills (B). Sports enjoyment is standardized. “High” and “low” copers are plotted as 1 SD above and below the mean.⁴⁵

Mild Leisure Exercise

Increased WCA was associated with reduced mild-intensity leisure activity in 1 of the regression models ($P = .05$; Table 4). There was a significant interaction between WCA and problem-focused coping ($P = .02$). Specifically, the association between WCA and mild leisure activity was negative among

children with poorer problem-focused coping skills but became positive among children with better problem-focused coping skills (Fig 3).

Moderate Leisure Exercise

None of the hypothesized effects involving WCA was significant in any of the analyses.

TABLE 3. Summary of Activity Versus Peers Regression Models

Predictor Variable	Moderator		
	Problem-Focused Coping β (<i>t</i> ; <i>P</i> Value)	Cognitive Restructuring β (<i>t</i> ; <i>P</i> Value)	Avoidant Coping β (<i>t</i> ; <i>P</i> Value)
Age	0.01 (0.33; .74)	0.01 (0.23; .82)	0.01 (0.16; .87)
Gender	0.19 (4.63; <.0001)	-0.19 (4.64; <.0001)	0.20 (4.80; <.0001)
BMI	-0.06 (-1.24; .22)	-0.06 (-1.25; .21)	-0.06 (-1.23; .22)
GWC	-0.04 (-0.75; .45)	-0.03 (-0.60; .55)	-0.03 (-0.58; .56)
Coping	-0.52 (-1.64; .10)	-0.46 (-1.43; .15)	-0.55 (-1.61; .11)
WCA	-0.58 (-4.04; <.0001)	-0.57 (-3.55; <.001)	-0.67 (-3.24; .001)
Coping * WCA	0.61 (1.79; .08)	0.52 (1.51; .13)	0.69 (1.64; .10)
Overall regression model: F and <i>P</i> values	F = 17.40, <i>P</i> < .0001	F = 17.10, <i>P</i> < .0001	F = 17.13, <i>P</i> < .0001
Overall regression model: R ²	0.20	0.20	0.20

Fig 2. Relationship between physical activity compared with peers and WCA for children “high” and “low” in problem-focused coping skills. Physical activity compared with peers is standardized. “High” and “low” copers are plotted as 1 SD above and below the mean.⁴⁵

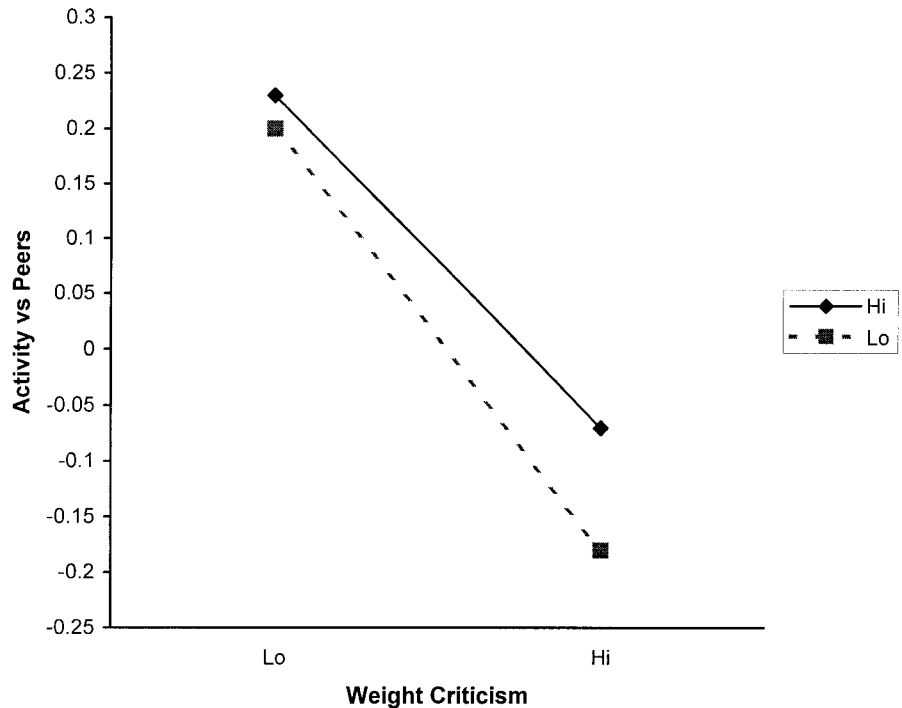


TABLE 4. Summary of Mild-Intensity Leisure Activity Regression Models

Predictor Variable	Moderator		
	Problem-Focused Coping β (<i>P</i> Value)	Cognitive Restructuring β (<i>P</i> Value)	Avoidant Coping β (<i>P</i> Value)
Age	0.10 (2.09; .04)	0.08 (1.76; .08)	0.10 (2.04; .04)
Gender	-0.02 (-0.41; .68)	-0.02 (-0.35; .72)	0.01 (0.15; .88)
BMI	-0.11 (-2.02; .04)	-0.11 (-2.00; .05)	-0.09 (-1.79; .07)
GWC	0.12 (2.05; .04)	0.12 (2.20; .03)	0.11 (2.00; .05)
Coping	-0.71 (-2.04; .04)	-0.43 (-1.17; .24)	0.22 (0.58; .56)
WCA	-0.31 (-1.97; .05)	-0.20 (-1.10; .27)	0.06 (0.26; .80)
Coping * WCA	0.91 (2.41; .02)	0.57 (1.47; .14)	-0.07 (-0.15; .88)
Overall regression model: F- and <i>p</i> -values	F = 3.50, <i>P</i> = .001	F = 2.68, <i>P</i> = .01	F = 3.49, <i>P</i> = .001
Overall regression model: R ²	0.05	0.04	0.05

Strenuous Leisure Exercise

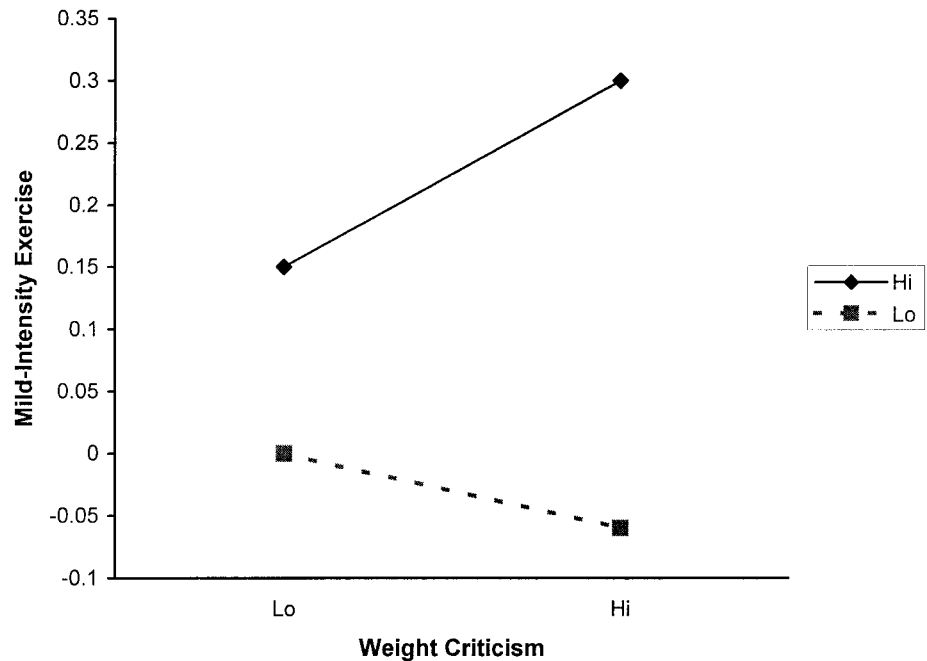
None of the hypothesized effects involving WCA was significant in any of the analyses.

DISCUSSION

Concerns about physical inactivity among children and adolescents has become an issue of substantial public health importance.^{1,47} This is the first study to

our knowledge to test weight criticism in relation to sports enjoyment and physical activity levels in children. WCA was associated with poorer sports enjoyment, reduced perceived activity compared with peers, and reduced mild-intensity physical activity. The causal mechanisms underlying these associations were not evaluated in this study, although several can be speculated. From a behavioral economic

Fig 3. Relationship between mild-intensity physical activity and WCA for children “high” and “low” in problem-focused coping skills. Mild-intensity physical activity is standardized. “High” and “low” copers are plotted as 1 SD above and below the mean.⁴⁵



perspective,⁴⁸ WCA may decrease the “reinforcing value” of physical activity such that children who are teased are less likely to be active when given a choice of things to do. The construct of “relative reinforcement value” has been studied in relation to various addictive and health behaviors, childhood eating and physical activity, and childhood obesity.^{15,48,49} An experimental study could test whether the reinforcing value of physical activity changes as a function of the presence/absence of concomitant negative verbal commentary.

Alternatively, WCA may be secondary to low sports enjoyment and physical activity or a correlate thereof. For example, children who are inept at sports and avoid physical activity ultimately may elicit negative verbal commentary from peers when they exercise. Pertinent data come from Pierce and Wardle,⁵⁰ who examined the associations among self-esteem, criticism history, peer relations, and sport participation in obese children. Overweight children commonly reported being “embarrassed doing physical activity and playing sports.” Seventy-two percent of the subjects indicated that they were excluded from games and sports because of their body size. Ninety percent of the students thought that the criticism would stop if they lost weight. Of course, both models could be operating such that there is a bidirectional association between WCA and sports enjoyment/physical activity measures. Finally, more complicated pathways may be operating because physical activity is probably influenced by multiple genetic and environmental inputs.⁵¹ It is noteworthy that the associations between WCA and gender or BMI were statistically significant but relatively small in magnitude.

WCA and general weight criticism had opposite associations with outcome measures, such that the later was associated with greater sports enjoyment, overall activity compared with peers, and mild-in-

tensity physical activity. This paradoxical finding is curious and may relate to the context in which weight criticism occurs. Negative verbal commentary that is not immediately anchored to contextual cues associated with physical activity may motivate some children to increase physical activity. In a study of third- and fourth-grade children, for example, mothers’ critical comments about child weight was associated with increased child weight loss attempts—most typically increased exercise.^{52,53} That criticism could be “beneficial” or motivational was suggested by Shapiro et al,⁵⁴ who found that 18% of third-graders and 32% of fifth-graders reported that criticism can sometimes be “good.” That weight teasing could have beneficial effects is also suggested by a recent focus group study⁵⁵ that found that low-income mothers defined a child as obese depending on teasing history rather than on growth charts. Pertinent data on the context-specific nature of weight and eating criticism also come from a recent report by Baker et al,⁵⁶ who found that eating disorder tendencies in undergraduates were associated with maternal criticisms specific to the child’s eating behavior rather than general criticisms of the child.

WCA was associated with mild-intensity but not moderate- or strenuous-intensity activities. Understanding the circumstances in which children engage in increasingly strenuous versus mild activities may provide clarification. Perhaps the conditions under which children engage in strenuous activities are less likely to elicit criticism from peers. There are currently limited data on the “natural ecology” of physical activity in children and co-occurring peer interactions.⁹

Results generally supported the hypothesis that problem-focused coping is an “effective” coping strategy with respect to WCA and physical activity outcomes. Randomized interventions that target coping with WCA might experimentally test the influ-

ence of coping skills on physical activity patterns. An emerging literature suggests that certain coping skills may facilitate children's ability to handle social relations,⁵⁷ substance use,⁵⁸ internalizing/externalizing behaviors,²⁴ and depressive symptoms.⁵⁹ Physical activity outcomes might be added to this list pending additional studies.

There was no evidence that avoidant coping is an "ineffective" strategy for dealing with WCA. For most analyses, it had no moderating relationship. It is interesting that avoidant coping attenuated the negative association between WCA and sports enjoyment—suggesting that it was an effective coping strategy. Reasons for this are unclear but may relate to the extent to which children perceive that they have control over WCA. Previous research indicated that avoidant coping strategies can have beneficial effects when children perceive little control over the distressing situation.^{27,28} Future studies might address this question. Finally, contrary to our predication, cognitive restructuring was neither an effective nor an ineffective coping strategy with respect to any of the outcome measures. Cognitive restructuring strategies can be effective in helping certain children cope with other life stressors,^{20,23,24} although we did not observe that herein. This intriguing finding awaits replication but tentatively suggests that problem-focused strategies might be more effective for the issues studied herein.

Limitations of this study include an ethnically homogeneous sample, exclusive reliance on self-report methodology, and a cross-sectional correlational design that does not allow for causal inference. It is possible that history of WCA might have an impact on the validity of self-reported weight. One could speculate that children who have a greater history of teasing during physical activity might underreport their actual weight. However, if this were the case, then it seems that such a situation would induce a negative correlation between WCA and BMI. That is, such a systematic reporting bias would induce a scatterplot in which increasing WCA coincided with reports of lower relative body weight. The present results, by contrast, find that heavier children are the recipients of greater WCA. Future studies should attempt to use measured height and weight or other body composition methods to reduce/eliminate the aforementioned bias. Finally, on a semantic note, the term "weight criticism" may be felicitous and inadequately capture the psychosocial phenomenon being studied.

CONCLUSION

This study establishes associations of WCA with reported physical activity levels and enjoyment and shows that active coping skills for criticism moderates these associations. Future studies delineating causal pathways and underlying biobehavioral mechanisms are needed, potentially to guide better interventions with children. Future studies might also explore whether the context in which weight criticism occurs (eg, in sports or gym versus other settings) has differential effects on physical activity outcomes. In the meantime, assessing WCA may be

clinically useful in efforts to increase physical activity for certain children.⁶⁰

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