Eating Behaviors 15 (2014) 116–119

Contents lists available at ScienceDirect

Eating Behaviors

Effects of perfectionism and exercise on disordered eating in college students

Lauren R. Paulson *, Patricia C. Rutledge

Department of Psychology Allegheny College, 520 North Main Street, Meadville, PA 16335, USA

ARTICLE INFO

Article history:
Received 4 March 2013
Received in revised form 27 October 2013
Accepted 20 November 2013
Available online 28 November 2013

Keywords:
Perfectionism
Exercise
College students
Disordered eating

ABSTRACT

Purpose: This study examined two dimensions of perfectionism (Standards and Discrepancy), two aspects of exercise (cardiovascular and strength), and the interaction of these variables as predictors of disordered eating in female and male college students.
Methods: Recruited participants ($N = 314$; $n = 204$ women) completed self-report measures of disordered eating (Eating Attitudes Test), perfectionism (Almost Perfect Scale-Revised; Standards and Discrepancy subscales), and exercise (strength and cardiovascular).
Results: Among women, there was a significant three-way interaction between the two dimensions of perfectionism (Standards and Discrepancy) and cardiovascular exercise. Also among women, there was a significant two-way interaction between the Standards dimension and strength exercise and between the Discrepancy dimension and strength exercise. There were no significant main effects or interactions among men.
Conclusions: We found some support for the hypotheses that adaptive perfectionism (higher Standards coupled with lower Discrepancy) is a protective factor for disordered eating and that maladaptive perfectionism (higher Standards coupled with higher Discrepancy) is a risk factor, although, only among women who engaged in lower, but not higher, levels of cardiovascular exercise. The findings also suggest that it may be beneficial to consider dimensions of perfectionism and exercise separately when studying disordered eating.

1. Introduction

American college students engage in a variety of behaviors to control their weight (American College Health Association, 2012) and recent studies reveal that a non-negligible number of American college students are at risk for disordered eating, with rates of disordered eating among college women placed at 10.9% (Hoerr, Bokram, Lugo, Bivins, & Keast, 2002), 13.5% (Eisenberg, Nicklett, Roeder, & Kirz, 2011), and 17.1% (Prouty, Protinsky, & Canady, 2002). Less is known about disordered eating in male college students; however, 4.0% (Eisenberg et al., 2011) and 3.6% (Hoerr et al., 2002) of college men have reported disordered eating symptoms. Given the risks associated with disordered eating such as emotional distress and extreme weight control behaviors (Stice, 2002; Striegel-Moore & Bulik, 2007; Thompson, 2004), and the risk of developing a clinical eating disorder (Lowe et al., 1996), it is important to understand disordered eating in college students in order to develop and implement appropriate prevention and intervention measures.

Perfectionism, a widely recognized factor in the development and maintenance of eating disorders, has been conceptualized as having adaptive and maladaptive dimensions (Slaney, Rice, & Ashby, 2002); however, surprisingly little research has examined the relationship between the adaptive and maladaptive dimensions of perfectionism and disordered eating in college students.

Research has found a link between disordered eating and exercise (Cook, Hausenblas, Tuccitto, & Giacobbi, 2011; Matheson & Crawford-Wright, 2000; Yates, Edman, Crago, & Crowell, 2001) and, in addition, some studies (Greenleaf, Petrie, Carter, & Reel, 2009; Holm-Denoma, Scaringi, Gordon, Van Orden, & Joiner, 2008), but not others (Hopkinson & Lock, 2004; Kirk, Singh, & Getz, 2001; Levitt, 2008) have found evidence of higher levels of disordered eating among athletes than among nonathletes. Clearly, it is important to consider exercise when studying disordered eating (Levitt, 2008; Meyer, Taranis, & Touyz, 2008) and to address both cardiovascular and strength exercises.

2. Current study

This study explored the roles of two dimensions of perfectionism (Standards and Discrepancy), two types of exercise (cardiovascular and strength exercises), and the interaction of these variables in disordered eating in college students. It was expected that adaptive perfectionism (higher Standards combined with lower Discrepancy) would be associated with lower levels of disordered eating and maladaptive perfectionism (higher Standards combined with lower Discrepancy) would be associated with higher levels of disordered eating. Furthermore, it was anticipated that exercise,

* Corresponding author. Tel.: +1 814 332 6029.
E-mail addresses: lpaulson@allegheny.edu (L.R. Paulson), prutledg@allegheny.edu (P.C. Rutledge).

1471-0153/$ – see front matter © 2013 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.eatbeh.2013.11.005

both cardiovascular and strength, would intensify the effects of maladaptive perfectionism.

3. Methods

3.1. Participants

Participants were $N = 314$ ($n = 204$ women; 86.6% white; $M = 19.95$ years [$SD = 2.14$]) undergraduates at a small liberal arts college. The study was approved by the institutional review board.

3.2. Measures

Disordered eating was assessed with the Eating Attitudes Test-26 (EAT-26) (Garner, Olmsted, Bohr, & Garfinkel, 1982), which includes 26 items assessed on a 6-point Likert scale (0 = always, 5 = never). Scores greater than 20 indicate abnormal eating behavior (Garner, Olmsted, & Polivy, 1983); however, lower cut-off scores may be appropriate to identify at-risk individuals (Mintz & O'Halloran, 2000). Internal consistency, test–retest reliability, and convergent validity are good (Doninger, Enders, & Burnett, 2005). Researchers have also found acceptable reliability for men (Koenig & Wasserman, 1995).

Perfectionism was assessed with the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), a 23-item inventory with three subscales: Standards, Discrepancy, and Order. Two subscales, Standards and Discrepancy, were used to differentiate maladaptive and adaptive perfectionism (Slaney et al., 2001). The Standards subscale assesses the personal standards a person holds for their own performance and the Discrepancy subscale assesses the distress a person experiences when their actual performance does not meet their standards. Maladaptive perfectionism is the combination of high levels of Standards and high levels of Discrepancy. Adaptive perfectionism is the combination of high levels of Standards and low levels of Discrepancy. The APR-S has internal consistency coefficients for Standards and Discrepancy ranging from .82 to .95 (Gilman & Ashby, 2003a, 2003b).

Cardiovascular and strength exercises were assessed with two measures: 1) the reported number of hours per week engaging in exercise and 2) the reported intensity of exercise. The product of these two measures was calculated for both cardiovascular and strength exercises and then used as measures of cardiovascular and strength exercises (Mond, Hay, Rodgers, Owen, & Beumont, 2004).

4. Results

Table 1 presents descriptive statistics, tests of gender effects, and correlations. Women had significantly higher EAT-26 scores than men; in addition, 15.3% of women and 2.7% of men displayed disordered eating (EAT-26 score of 20 or above). Women and men displayed high levels of perfectionism, indicated by average scores above 37 on the Standards subscale (Ashby, Rice, & Kutchins, 2008), but there were no gender differences in Discrepancy or Standards. Men were higher in strength exercise, but there was no gender difference in cardiovascular exercise. Among women, Discrepancy was the only variable correlated significantly with EAT-26. Among men, no variable correlated significantly with EAT-26. Standards were correlated with cardiovascular exercise in both genders, and with strength exercise in men. Cardiovascular and strength exercises were correlated in both genders.

The effects of the perfectionism dimensions and exercise type were examined with regression analyses predicting EAT-26 (Table 2). Because of the gender difference in EAT-26, women and men were modeled separately. Because the exercise variables were highly correlated, cardiovascular exercise and strength exercise were modeled separately. In Model 1 (Women and Cardiovascular exercise), there was a significant interaction between Standards, Discrepancy, and cardiovascular exercise. In Model 2 (Women and Strength exercise), there were significant interactions between Standards and strength exercise and between Discrepancy and strength exercise. There were no significant effects for men (Models 3 and 4).

A probe (Aiken & West; Dawson & Richter, 2006) of the three-way interaction in Model 1 revealed a complex relationship between Standards, Discrepancy, and cardiovascular exercise. Of particular importance are the findings for higher levels of Standards combined with lower levels of Discrepancy (i.e., adaptive perfectionism) and higher levels of Standards combined with higher levels of Discrepancy (i.e., maladaptive perfectionism). Adaptive perfectionism was associated with the lowest level of EAT-26 and maladaptive perfectionism was associated with the highest level of EAT-26, but only with lower levels of cardiovascular exercise. With higher levels of cardiovascular exercise, the highest levels of EAT-26 were associated with the combination of lower Standards and higher Discrepancy and the lowest levels of EAT-26 were associated with the combination of lower Standards and lower Discrepancy. In Model 2, a probe of the interaction of Discrepancy and strength exercise revealed that the lowest levels of EAT-26 were associated with the combination of lower levels of Discrepancy and lower levels of strength exercise and a probe of the interaction of Standards and strength exercise revealed that the lowest levels of EAT-26 occurred with the combination of lower levels of Standards and lower levels of strength exercise and also that the highest predicted levels of EAT-26 occurred with the combination of lower levels of Standards and higher levels of strength exercise.

5. Discussion

We found some support for the hypotheses that adaptive perfectionism (higher Standards coupled with lower Discrepancy) is a protective factor for disordered eating and that maladaptive perfectionism (higher Standards coupled with higher Discrepancy) is a risk factor, although, only among women. This finding is similar to previous findings that maladaptive perfectionists displayed disordered eating and adaptive perfectionists exhibited higher self-esteem and lower body dissatisfaction (Pearson & Gleaves, 2006). Moreover, the pattern of protection and risk was observed for women who engaged in lower, but not higher,

Table 1
Descriptive statistics, tests of gender effects and Pearson product–moment correlation coefficients by gender.

	Total (N = 312)		Women (n = 202)		Men (n = 110)		Tests of gender effects		Correlation coefficients by gender (Women above diagonal; men below diagonal)				
	M	*SD*	*M*	*SD*	*M*	*SD*	*t*	*p*	1	2	3	4	5
1. EAT-26	9.16	9.50	11.20	10.74	5.41	4.77	−6.56	.000		−.04	.30**	.14	.13
2. Standards	40.90	7.03	41.33	6.73	40.11	7.51	−1.47	.142	−.15		−.11	.15*	.03
3. Discrepancy	41.57	17.04	41.50	16.84	41.69	17.47	0.09	.925	.11	.14		.00	.02
4. Cardiovascular	8.46	7.70	8.33	7.79	8.69	7.58	0.39	.698	−.15	.26**	.10		.57**
5. Strength	5.43	5.86	4.00	4.32	8.06	7.27	5.37	.000	.11	.43**	−.01	.26**	

Note. Standards = APS-R Standards. Discrepancy = APS-R Discrepancy. Cardiovascular = Cardiovascular exercise. Strength = Strength exercise.
* $p < .05$.
** $p < .01$.