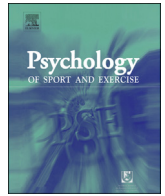




Contents lists available at ScienceDirect

## Psychology of Sport and Exercise

journal homepage: [www.elsevier.com/locate/psychsport](http://www.elsevier.com/locate/psychsport)

## Moderators and predictors of response to eating disorder risk factor reduction programs in collegiate female athletes

T.M. Stewart<sup>a,\*</sup>, M. Plasencia<sup>b</sup>, H. Han<sup>a</sup>, H. Jackson<sup>b</sup>, C.B. Becker<sup>b</sup>

<sup>a</sup>Pennington Biomedical Research Center, 6400 Perkins Rd., Baton Rouge, LA 70808, USA

<sup>b</sup>Trinity University, One Trinity Place, San Antonio, TX 78212-2100, USA

## ARTICLE INFO

## Article history:

Received 19 April 2013

Received in revised form

12 February 2014

Accepted 13 February 2014

Available online xxx

## Keywords:

Disordered eating

Female athletes

Sport

Prevention

Intervention

Moderators

Predictors

## ABSTRACT

**Objective:** The primary aim of this paper was to investigate moderators and predictors of response to two programs designed to reduce eating disorder risk factors in collegiate female athletes. This study served as an ancillary study to a parent trial that investigated the feasibility of an athlete modified cognitive dissonance-based program (AM-DBP) and an athlete modified healthy weight intervention program (AM-HWI).

**Design:** 157 female collegiate athletes were randomized to either the AM-DBP or the AM-HWI program. Participants completed surveys at baseline, post-intervention, 6 weeks, and 1 year.

**Methods:** After classifying sports as either lean or non-lean, we investigated if sport type acted as a moderator of program response to AM-DBP and AM-HWI using ANOVAs. Next, we examined whether baseline thin-ideal internalization, weight concern, shape concern, bulimic pathology, dietary restraint, and negative affect acted as predictors of changes in bulimic pathology using linear regression models. **Results:** Athletes in non-lean sports who received AM-DBP showed more improvement in negative affect versus non-lean sport athletes in AM-HWI. Higher baseline scores of bulimic pathology predicted greater response in bulimic pathology to both programs at 6-weeks. In contrast, athletes with higher dietary restraint and negative affect baseline scores showed decreased response to both interventions at 6-weeks. Finally, athletes with higher baseline shape concern showed a decreased response to the AM-HWI intervention at the post intervention time point.

**Conclusion:** Results from the present study indicate that lean/non-lean sport may not play a strong role in determining response to efficacious programs. Further, factors such as pre-existing bulimic pathology, dietary restraint, negative affect, and shape concern may affect general response to intervention versus specific responses to specific interventions.

© 2014 Published by Elsevier Ltd.

Collegiate female athletes comprise a special population of college women who often are at elevated risk for engaging in disordered eating habits and developing eating disorders (EDs) when compared to the general population (Sundgot-Borgen & Torstveit, 2004). Exposure to societal pressures to be thin, coupled with the demands of sport culture that focuses on body appearance, social comparison, body-revealing uniforms, and judging criteria, may result in a unique susceptibility to body image dissatisfaction and disordered eating (Greenleaf, Petrie, Carter, & Reel, 2009). Many athletes also believe that reducing weight or body fat will enhance athletic performance, even in non-judged sports (Thompson & Sherman, 2010).

As a result, many female athletes engage in restrictive eating patterns in order to reduce body weight and/or body fat (Hinton,

2005). However, female athletes often need to consume more calories than their non-athlete counterparts to sustain their active lifestyle. As such, it is not surprising that a recent study showed that 70 percent of female athletes in a college sample were not eating enough calories to meet their daily energy needs (Hinton, 2005). Female athletes who do not consume sufficient nutrient-rich calories to sustain their physical activity level are at a risk for developing the female athlete triad, which consists of inadequate energy availability, menstrual disorders, and diminished bone health (Manore, Kam, & Loucks, 2007).

### Prevention of eating disorders

Although more effective treatments for anorexia nervosa (AN) and bulimia nervosa (BN) have been developed, the success of treatment interventions for AN, BN, and eating disorder not

\* Corresponding author. Tel.: +1 225 763 2554.

E-mail address: [Stewartm@pbrc.edu](mailto:Stewartm@pbrc.edu) (T.M. Stewart).

otherwise specified (EDNOS; i.e., clinically significant eating disorders that do not meet criteria for AN, BN, or binge eating disorder (BED)) remains limited. For example, in a recent test of enhanced cognitive behavioral therapy, one of the most promising new eating disorder treatments for adults with AN, only 55% of participants in an open 2-country trial completed treatment and had minimal eating disorder psychopathology at the end of treatment (Fairburn et al., 2013); at 6 month follow-up in the same study the percentage with minimal eating disorder psychopathology dropped to 43%. Research also has demonstrated that there are elevated mortality rates for AN, BN, and EDNOS (Crow et al., 2009). Given the lack of effective treatment interventions for a large portion of the ED population, increased attention has been placed on prevention programs.

Historically, prevention programs have consisted primarily of psychoeducation/didactic components (i.e., instructional, educational, passive participation). However, research indicates that interactive programs (i.e., require active participation) are more effective at reducing ED pathology and risk factors (Stice & Shaw, 2004). Using this new paradigm, two dominant prevention strategies, both interactive programs, have emerged and received the most empirical support and independent replication: a cognitive dissonance-based prevention program (DBP) (Stice, Shaw, Becker, & Rohde, 2008), and a healthy weight intervention program (HWI) (Stice, Chase, Stormer, & Appel, 2001).

DBP incorporates the theory of cognitive dissonance, which states that discrepancies between an individual's beliefs and behavior lead to the alteration of beliefs in order to reduce psychological discomfort (Festinger, 1957, pp. 1–280). Thus, in the DBP program, participants engage in activities that reject the thin-ideal standard of female beauty promoted by western culture. This theoretically causes discomfort due to incongruence between any present thin-ideal internalization or body image concerns and the counter-attitudinal exercises. The psychological discomfort is then presumed to lead to a reduction in thin-ideal internalization. Based on Stice's dual pathway model, a decrease in thin-ideal internalization will lead to a decrease in both body dissatisfaction and negative affect, and ultimately, a decrease in ED pathology (Stice, 2001).

Alternatively, the HWI program endorses healthy changes in dietary intake and physical activity and aims to increase body satisfaction by teaching participants how to manage their weight in a healthy manner. HWI was developed by Stice and colleagues initially as a placebo control group against which to compare to DBP. When HWI produced positive effects, however, researchers began studying it as a potentially effective program in its own right. In HWI, participants evaluate eating and exercise habits via self-monitoring and then commit to small, manageable changes to diet and exercise during home assignments. Theoretically, once participants experience progress in changing unhealthy habits, they feel empowered to manage their weight for their body type. Both the behavioral change strategies and increased self-efficacy are presumed to contribute to decreased body dissatisfaction, negative affect, and ED pathology.

Both DBP and HWI programs have been shown to reduce eating disorder risk factors in randomized control trials conducted by independent researchers (Becker, Bull, Schaumberg, Cauble, & Franco, 2008; Becker, Smith, & Ciao, 2006; Becker et al., 2010; Green, Scott, Diyanikova, Gasser, & Pederson, 2005; Matusek, Wendt, & Wiseman, 2004; McMillan, Stice, & Rohde, 2011; Stice, Shaw, Burton, & Wade, 2006; Stice, Rohde, Gau, & Shaw, 2009; Stice, Marti, Spoor, Presnell, & Shaw, 2008b). Perhaps more importantly, they have been found to actually reduce the onset of EDs at 3-year follow-up. For example, Stice, Marti, Shaw, and O'Neil (2008a) found that both programs reduced the onset of new eating

disorder cases by approximately 60% relative to an assessment only control condition. Further, research also supports the viability of using peer-facilitators in a college-age sample of women (Becker et al., 2008, 2006, 2010). While DBP and HWI programs have yielded positive findings, more research is needed to determine whether or not these findings generalize to populations with specialized needs, such as female athletes.

Despite the fact that female athletes may be at a greater risk for disordered eating and development of the female athlete triad, few studies have examined eating disorder prevention programs with this population. One notable exception evaluated Athletes Targeting Healthy Exercise and Nutrition Alternatives (ATHENA), a sport-team centered, peer-led prevention program for female athletes (Elliot et al., 2004). In this program, participants completed activities that addressed the benefits of appropriate sport nutrition and exercise training over substance abuse and other unhealthy behaviors. Other facets of the program addressed self-esteem and depression. One of ATHENA's exercises asked participants to make public service announcements that discourage disordered eating habits (Elliot et al., 2004). A trial evaluating ATHENA against a usual-care control group demonstrated that athletes who received this program reported less use of diet pills and less new use of athletic/performance enhancing substances, as well as positive changes in dieting habits compared to those only receiving an educational pamphlet (control group) (Elliot et al., 2004).

More recently, Becker, McDaniel, Bull, Powell, and McIntyre (2012) (parent trial for the present study) randomized female athletes to either a peer-led athlete modified dissonance based prevention program (AM-DBP) or an athlete modified healthy-weight intervention (AM-HWI). Participants showed statistically significant reductions in thin-internalization, dietary restraint, bulimic pathology, shape concern, weight concern, and negative affect at a 6-week follow-up in both programs. These results held for negative affect, bulimic pathology, and shape concern at a 1-year follow-up (Becker et al., 2012). Unexpectedly, this study also found that a clinically significant number of athletes receiving this intervention approached their head athletic trainer with concerns that they had developed part of the female athlete triad, which had not occurred prior to the intervention (Becker et al., 2012). With the development and evaluation of promising ED risk factor reduction programs, further research is needed to identify moderators and predictors of response to these programs in order to maximize potential benefits to participants.

### Identification of moderators and predictors of program response

Identifying moderators and predictors of response to prevention strategies can provide useful information for improving intervention efficacy. A moderator may be considered an effect modifier or characteristic believed to be associated with variation in effect sizes. This variable influences the relationship between two variables in terms of magnitude of direction (Kazdin, 2003). Thus, moderators essentially aid in the identification of subgroups for which an intervention's, or in this case, a prevention program's, effects are stronger or weaker relative to the remainder of the sample (Stice et al., 2008a).

Like moderators, nonspecific treatment response predictors indicate who benefits from intervention/treatment, or under which conditions the intervention works best (Kraemer, Wilson, Fairburn, & Agras, 2002). Both moderators and predictors are variables that can be measured before treatment and are associated with outcomes; however, predictors do not differ across treatment conditions while moderators change the magnitude or direction of the effects across treatments. Thus, moderators and predictors can help

Download English Version:

<https://daneshyari.com/en/article/7253964>

Download Persian Version:

<https://daneshyari.com/article/7253964>

[Daneshyari.com](https://daneshyari.com)