

University of Birmingham

From the Selected Works of Jennifer Cumming

2011

Imagining Yourself Dancing to Perfection? Correlates of Perfectionism Among Ballet and Contemporary Dancers

Sanna M. Nordin-Bates

Jennifer Cumming, *University of Birmingham*

Danielle Aways

Lucinda Sharp



Available at: https://works.bepress.com/jennifer_cumming/14/

Imagining Yourself Dancing to Perfection? Correlates of Perfectionism Among Ballet and Contemporary Dancers

Sanna M. Nordin-Bates

Trinity Laban Conservatoire of Music and Dance, UK

Jennifer Cumming

University of Birmingham, UK

Danielle Aways

Wolverhampton University, UK

Lucinda Sharp

The Australian Ballet School

The present study investigated perfectionism prevalence and its relationship to imagery and performance anxiety. Two hundred and fifty ($N = 250$) elite students (66.4% female; $M_{\text{age}} = 19.19$, $SD = 2.66$) studying mainly classical ballet or contemporary dance in England, Canada, and Australia completed questionnaires assessing perfectionism, imagery, and performance anxiety. Cluster analysis revealed three distinct cohorts: dancers with *perfectionistic tendencies* (40.59% of the sample), dancers with *moderate perfectionistic tendencies* (44.35%), and dancers with *no perfectionistic tendencies* (15.06%). Notably, these labels are data driven and relative; only eight dancers reported high absolute scores. Dancers with perfectionistic tendencies experienced more debilitating imagery, greater cognitive and somatic anxiety, and lower self-confidence than other dancers. Dancers with moderate perfectionistic tendencies reported midlevel scores for all constructs and experienced somatic anxiety as being more debilitating to performance than did those with no perfectionistic tendencies. Clusters were demographically similar, though more males than females reported no perfectionistic tendencies, and vice versa. In summary, the present findings suggest that “true” perfectionism may be rare in elite dance; however, elements of perfectionism appear common and are associated with maladaptive characteristics.

Keywords: perfectionism, dance, imagery, anxiety, self-confidence, sport

Sanna M. Nordin-Bates is with Trinity Laban Conservatoire of Music and Dance, London, UK. Jennifer Cumming is a lecturer of Sport and Exercise Psychology at the University of Birmingham, UK. Danielle Aways is Senior Lecturer in the Dance Department at the University of Wolverhampton, UK. Lucinda Sharp is the head of student welfare at the Australian Ballet School in Melbourne.

It is often argued that dancers are perfectionists: self-critical sticklers for detail who drive themselves rigorously toward ever-moving targets—technical and artistic perfection (Hamilton, 1998; Sharp, 2005). Moreover, it is frequently implied that this single-minded dedication is not only necessary to reach the highest ranks but is also an admirable trait. For example, an article about dancing legend Rudolf Nureyev described him as follows:

Everyone, audiences and dancers alike, went into raptures about this exceptional dancer, his amazing elevation, his ability to remain suspended in midair at the highest point of his jumps, his sense of drama, his magnetic presence. . . . He had an unquenchable thirst, wanting to know everything, dance everything, learn everything concerning his profession and concerning all the arts. . . . He was never satisfied with the results. (Ciolkovitch, 2008)

Despite anecdotes like this, few studies exist that verify whether perfectionism is prevalent among dancers and what this might mean for their psychological well-being. To examine these questions, it is important to first define what is meant by perfectionism as a construct.

Even a cursory glance at the perfectionism literature reveals a multitude of conceptualizations, definitions, and measurement tools, but two main schools of thought emerge. One is based around thinking of perfectionism as something that is either *self-oriented* (striving for perfection due to internal drives), *other-oriented* (holding others to one's own perfectionistic standards), or *socially prescribed* (striving for perfection due to perceived external pressures or expectations; Hewitt & Flett, 1991). The second has focused on perfectionism as having distinct subcomponents of personal qualities including the setting of high *personal standards*, a tendency to experience great *concern over mistakes* and *doubts about actions* (i.e., doubting whether performance is ever good enough), as well as interpersonal qualities including perceptions of high *parental expectations* and *parental criticism* (Frost, Marten, Lahart, & Rosenblate, 1990).

While the debate as to what are the “true” components of perfectionism is likely to continue, two key dimensions emerge repeatedly even from studies based on different theoretical frameworks. These dimensions, *high personal standards* and *concern over mistakes*, have also been construed as the “driver” variables behind the numerous dual-approach conceptualizations of perfectionism. Such conceptualizations, including those described by Slade and Owens (1998) and Stoeber and Otto (2006), suggest that there are two distinct types of perfectionism. One is said to be driven by a desire for success and to be characterized by a positive, approach-oriented striving for perfection and the setting of challenging goals. Such persons would likely score high on the *personal standards* factor mentioned above. As an example, Gould, Dieffenbach, and Moffett (2002) described a sample of Olympic athletes as perfectionists based on the organized way in which they strived toward highly challenging personal goals. Because it is viewed as healthy and as resulting in positive outcomes, Slade and Owens have suggested that such perfectionism should be encouraged.

Another form of perfectionism is characterized by a far less favorable avoidance-oriented striving to avert negative outcomes (including imperfection), with *concern over mistakes* and *doubts about actions* being defining features. Despite efforts to avoid negative outcomes on the part of these individuals, this form of

perfectionism has been found to result in a range of maladaptive effects, notably in the area of well-being (e.g., emotional suppression; Bergman, Nyland, & Burns, 2007; Slade & Owens, 1998).

The theoretical propositions and findings from mainstream psychology have been adapted to sport in several ways. To date, no perfectionism measure has been developed specifically for dance. A recent study by Kronvall Parkinson, Hanrahan, Stanimirovic, and Sharp (2007) employed two measures originally developed in the clinical domain to comprehensively measure the dimensions of perfectionism across sport and dance domains: the Frost Multidimensional Perfectionism Scale (Frost et al., 1990) and the Positive and Negative Perfectionism Scale (PANPS; Terry-Short, Owens, Slade, & Dewey, 1995). It was found that while no differences existed in positive perfectionism (i.e., striving for positive outcomes) among basketball players, gymnasts, and ballet dancers, the latter group scored higher on negative perfectionism (i.e., striving to avoid negative outcomes).

Although several studies appear to support a dual-approach conceptualization of perfectionism (Bergman et al., 2007; Hall, Kerr, & Matthews, 1998; Kronvall Parkinson et al., 2007; Slade & Owens, 1998), there is also evidence that even so-called positive perfectionism sometimes results in negative outcomes. Flett and Hewitt (2006) have argued that positive perfectionism results, at least partly, from a fear of failure and avoidance motives. At least two studies indicate that not just negative perfectionism but also its “positive” counterpart is significantly associated with disturbed or disordered eating (Haase, Prapavessis, & Owens, 2002; Terry-Short et al., 1995). Thus, we agree with Flett and Hewitt that “the time has come for theorists and researchers in the perfectionism field to take a much closer look at the notion of positive perfectionism and determine whether it really is a healthy form of behavior that yields positive outcomes” (p. 474) and consequently heed their call to conduct research on perfectionism and its correlates. We do so within the context of dance because research progress in dance lags behind that in sport, and extant data indicate that perfectionism in dance might be more negative than in sport (Kronvall Parkinson et al., 2007).

Perfectionism in Dance

To identify persons as perfectionists, a common method adopted in the literature has been to use cluster analyses (Martinent & Ferrand, 2007; Parker, 1997; Rice & Slaney, 2002; Wang, Slaney, & Rice, 2007). Such an approach allows insight into the multidimensional nature of psychological characteristics in a different way than examinations of how *degrees* of perfectionism are related to various correlates (as is done in studies relying on bivariate correlations; Martinent & Ferrand, 2007). It also allows examination of perfectionism *prevalence* for a sample by simply counting the number of individuals within each cluster. Therefore, the current study adopted a cluster analytic approach to attain the primary aim of our research: to examine the prevalence of perfectionism among a sample of preprofessional dancers. This population was considered of interest because of its high levels of commitment to an activity subject to regular, high levels of evaluative threat (Frost & DiBartolo, 2002). The choice of population also served to extend previous findings that have focused on dance students (Krasnow, Mainwaring, & Kerr, 1999; Kronvall Parkinson et al., 2007).

Dance research has focused largely on classical ballet. This is significant because ballet has been criticized as being more authoritarian, less flexible, and more focused on appearance than sensation in comparison with, for instance, contemporary dance (e.g., Jackson, 2005; Morris, 2003). To date, only one study has compared the perfectionistic tendencies of ballet and contemporary dancers (Krasnow et al., 1999). It was found that ballet and modern dancers did not differ in their degree of maladaptive perfectionism (i.e., on dimensions of parental criticism, concern over mistakes, and doubts about action); however, the sample size was very small ($n = 35$), and no comparison was made concerning personal standards (i.e., the aspect of perfectionism sometimes seen as more positive). For these reasons, it was considered valuable to consider dance genre when examining the prevalence of perfectionism in the current study.

Perfectionism and Imagery

The potential relationships between perfectionism and imagery have only been partly explored and then only as part of investigations into related but different constructs (Flett, Hewitt, Blankstein, & Gray, 1998; Frost & Henderson, 1991; Liston, Frost, & Mohr, 2003). From these investigations, it emerged that perfectionists do experience cognitions, including images, related to their perfectionistic personality. For instance, Frost and Henderson found that perfectionists were more likely to report cognitions such as “I dream of being perfect” and debilitating imagery such as “Images of me making a mistake clog my mind.” Flett et al. took these findings a step further by reporting that university students with greater frequencies of perfectionistic cognitions were more likely to report images indicating a fear of failure as well as greater negative affect, anxiety, depression, and lower life satisfaction.

Imagery research in sport, exercise, and dance focuses primarily on facilitative imagery such as the frequency with which performers imagine themselves performing skills well (for a review see Murphy, Nordin, & Cumming, 2008). Debilitating imagery, such as seeing oneself fall or imagining one’s anxiety spiraling out of control, has received far less research attention. It is known that professional dancers do experience debilitating images at least some of the time (Nordin & Cumming, 2005), but there is a lack of quantitative investigation into how frequent such images may be. To extend the research into perfectionistic cognitions outlined above, part of the second aim of the current study was to compare subgroups of dancers with different perfectionism profiles (i.e., clusters) on their self-reported frequencies of facilitative and debilitating imagery.

Perfectionism and Anxiety

Studies in sport (e.g., Frost & Henderson, 1991; Hall et al., 1998; Koivula, Has-smén, & Fallby, 2002; Martinet & Ferrand, 2007), dance (Carr & Wyon, 2003; McLean & Sharp, 1999), and mixed arts (Mor, Day, Flett, & Hewitt, 1995) collectively indicate that greater perfectionistic tendencies (particularly concern over mistakes) are associated with the experience of anxiety. By contrast, holding high personal standards has been positively related to self-confidence (Hall et al.) and self-esteem (Koivula et al.). The most recent dance study found no relationships

between perfectionism and state anxiety in a mixed athlete-dancer sample (Kronvall Parkinson et al., 2007), a result that may or may not be due to the small sample size ($N = 33$, of which $n = 12$ ballet).

Potential relationships between perfectionism and anxiety direction (interpretation of symptoms associated with anxiety) also remain relatively unexplored, despite sport research indicating that direction may be a stronger predictor of performance than anxiety intensity (Hanton, Neil, & Mellalieu, 2008). To our knowledge, only two studies have examined whether perfectionism is associated with anxiety direction in sport (Martinent & Ferrand, 2007; Mor et al., 1995). In both studies, individuals who scored higher on more negative aspects of perfectionism were also more debilitated by their anxiety symptoms. Recent work in dance has highlighted how professional dancers interpret cognitive and somatic anxiety symptoms differently and that anxiety interpretation is important in learning to manage anxiety (Walker & Nordin-Bates, 2010). The present study aimed to build on this work by being the first to employ a relatively large dance-specific sample to examine anxiety and its relationships to perfectionism.

In summary, the aims of this study were twofold. First, we examined the prevalence of perfectionism among elite dance students using a cluster analytic approach. As part of this goal, we were interested in exploring whether perfectionism was more common among ballet dancers than among contemporary dancers. Second, we examined whether the subgroups of dancers distinguished based on their perfectionism scores also differed on two potential correlates of perfectionism: imagery (facilitative and debilitative) and anxiety (intensity and direction).

Method

Participants

Two hundred and fifty dancers ($N = 250$) originally took part in the study, 66.4% of whom were female and 23.6% of whom were male; 10% did not report their sex. Participants trained primarily in classical ballet or contemporary dance in Australia ($n = 52$ contemporary, $n = 49$ ballet), Canada ($n = 50$ contemporary, $n = 46$ ballet), and England ($n = 25$ contemporary, $n = 28$ ballet). They represented conservatoires (39.2%), vocational schools (30.8%), and universities (30.0%). The dancers ranged in age from 15 to 36 years, but were mostly 18–20 years of age ($M = 19.19$, $SD = 2.66$). They had taken part in their main dance type (ballet or contemporary) for an average of 8.33 years ($SD = 4.27$) and had an average of 7.60 ($SD = 5.48$) years of additional experience in the other dance style (ballet for contemporary dancers and vice versa). Overall, they had danced in any style for an average of 12.34 years ($SD = 4.18$) and been in their current school for 2.54 years ($SD = 1.54$). At the time of the study, they danced for an average of 26.17 hr per week ($SD = 7.67$).

Materials

Demographic Information. Participants were categorized according to the main dance type for their school or course (ballet or contemporary). Other demographic information obtained included age, sex, country of residence, and the number of years of participation in ballet, contemporary, any type of dance, and in their current institution. Participants also indicated the number of hours they currently/typically

danced per week and the type of institution they attended (university dance degree, conservatoire, or vocational school).

Competitive Trait Anxiety Inventory-2 (CTAI-2). The CTAI-2 (Albrecht & Feltz, 1987) assesses how performers typically feel in relation to competing. For our purposes, however, the word *performance* was substituted for the word *competition*. The CTAI-2 comprises three subscales of nine items each: cognitive anxiety, somatic anxiety, and self-confidence. Items are scored on a Likert scale ranging from 1 (*not at all*) to 4 (*very much so*), with total intensity scores ranging from 9 to 36. In addition to intensity, anxiety perceptions were assessed using Jones and Swain's (1992) direction component. This dimension asks performers to indicate their perceptions of the various symptoms using a Likert scale ranging from -3 (*very debilitating*) to +3 (*very facilitative*) via 0 (*unimportant*). Thus, the range of total intensity scores is -27-27. The CTAI-2 is the successful adaptation of a state anxiety measure (the CSAI-2; Martens et al., 1990) to a trait anxiety measure and adequate validity and reliability information exists for the state measure (e.g., Jones & Swain, 1995; Martens et al., 1990; Mellalieu, Hanton, & O'Brien, 2004).

Dance Imagery Questionnaire (DIQ). The DIQ (Nordin & Cumming, 2006) assesses the frequency with which dancers experience various types of imagery. The scale comprises 16 items within four subscales: technique, mastery, goal, and role and movement quality imagery. The DIQ yields scores for each subscale or an overall score and has established validity and reliability (Nordin & Cumming, 2006, 2008). The present study used an adapted DIQ in which each item was stated in the original manner but also in the "reversed" manner (i.e., stated negatively) in an attempt to capture debilitating imagery. For instance, the original item "I imagine specific skills (e.g., a jump, a pirouette) being performed perfectly" was reversed to state "I imagine specific skills (e.g., a jump, a pirouette) being performed badly." Thus, this version of the DIQ was comprised of 32 items. Participants indicated their answers on a Likert scale ranging from 1 (*never*) to 7 (*very often*). For the purposes of the current study, overall scale scores were used for facilitative and debilitating imagery. See Table 1 for Cronbach's alpha scores.

Perfectionism Inventory. The Perfectionism Inventory (PI; Hill et al., 2004) was designed to capture the multidimensional nature of perfectionism among individuals in their everyday lives. The PI captures a person's tendency to *strive for excellence*, hold *high standards for others*, their *planfulness* and *organization*, as well as *perceived pressure* from parents, *concerns over mistakes*, their *need for approval*, and *rumination*. The first four subscales combine into a factor labeled *conscientious perfectionism*, while the latter four combine into a factor called *self-evaluative perfectionism*. We chose the PI because it is more comprehensive than either of the other two major measures (i.e., the Frost MPS and the Hewitt MPS; Frost & Henderson, 1991; Hewitt & Flett, 1991) by integrating constructs from both (Hill et al.). Hill et al. established that the PI is reliable and valid. Given that our focus was on perfectionism in dance, minor amendments were made. First, the organization subscale was dropped because it did not easily translate to dance (i.e., it was difficult to make items such as "I clean my home often" dance specific). The noninclusion of an organization subscale also has a precedent, with previous research making similar decisions based on low intersubscale correlations or poor model fit (e.g., Tashman, 2005). A second step in making the PI dance specific was

reconceptualizing the parental pressure subscale to reflect teacher pressure, with all references to parents altered to reflect teachers. One other minor amendment was altering the item “After I turn a project in, I can’t stop thinking of how it could have been better” to “After I complete a dance assessment or performance, I can’t stop thinking of how it could have been better.” Participants were instructed to think about their life in dance when answering the questions, not their lives in general. These changes reflect findings by Dunn, Gotwals, and Dunn (2005), which suggested that perfectionism is a domain-specific construct (see Table 1). Altogether, the dance specific PI comprised 51 items falling into seven subscales. All items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Procedure

Pilot Study. A sample of university dance students ($n = 13$) participated in a pilot study. They were mostly female (76.9%), ranged in age from 20 to 21 years, and were trained in contemporary dance. The aim of the pilot study was to establish whether the original and “reversed” versions of the DIQ were perceived to be facilitative and debilitating as intended. To this end, participants provided the demographic information outlined above and completed the modified DIQ. In addition, they scored each item on a direction scale similar to that of Jones and Swain (1992) described above. That is, they answered the question “When you have this image, do you normally regard it as hurtful (debilitative) or helpful (facilitative) in relation to your dancing?” on a Likert scale ranging from -3 (*very debilitating*) to $+3$ (*very facilitative*) via 0 (*unimportant*) for each of the 32 items. A paired samples t test confirmed that participants perceived the original DIQ to be significantly more facilitative ($M = 1.27$, $SD = 0.79$) than the “reversed” DIQ ($M = -1.44$, $SD = 1.19$), $t(12) = 6.43$, $p < .01$.

Main Study. Once the study had been approved by the University Ethics Committee, participants were recruited by five researchers (one in Canada, two in Australia, two in England). Recruitment took place via directors in elite institutions (vocational schools, conservatoires, university level dance programs) where students were training to become professional dancers. The order of questionnaires was counterbalanced so as to avoid ordering effects, and a definition of imagery was provided (as per Nordin & Cumming, 2006). After agreeing to participate in the study, participants received an information letter and provided informed consent before completing the questionnaires. Measures were completed in approximately 20–30 min, and participation took place before, during, or after practice sessions.

Results

Preliminary Analyses

Study variables were standardized using z scores (i.e., mean of 0, standard deviation of 1), and the multivariate distributions were inspected for normality by calculating Mahalanobis distance values. Using a criterion of $p < .001$ (Tabachnick & Fidell, 2007), these were evaluated as a χ^2 with $n-1$ degrees of freedom, where n is equal to the number of variables (i.e., 169). Nine cases had a value greater than 213 and were subsequently deleted, and two were discarded due to incomplete data sets,

leaving a final sample of 239 participants. The internal reliability of each subscale was adequate with Cronbach's alpha values ranging from 0.74 to 0.89 (see Table 1). To better understand how variables were related, bivariate correlations between PI subscales, imagery types, and anxiety constructs were calculated next; these are also displayed in Table 1. On the whole, PI subscales were positively intercorrelated; facilitative and debilitating imagery as well as self-confidence were related to the conscientious and self-evaluative perfectionism constructs in varying ways; and anxiety intensities were positively related to perfectionism, but most strongly to the self-evaluative components. For anxiety direction, the opposite was true.

Cluster Analyses

To profile the dancers, a combination of hierarchical and nonhierarchical cluster analytic techniques was employed (Gore, 2000; Hair, Anderson, Tatham, & Black, 2005) using the standardized scores of the perfectionism subscales. The hierarchical cluster analysis was conducted from random seed points using a Ward's method of linkage and a squared Euclidean distance measure. The resulting dendrogram indicated that a 3-cluster solution existed in the data. This number of clusters is also in line with previous research (Grzegorek, Slaney, Franze, & Rice, 2004; Rice & Ashby, 2007; Rice & Slaney, 2002). The cluster centers emerging from the hierarchical analysis were then used as the initial seed point to achieve the final solution with a nonhierarchical cluster analysis (i.e., K-means). The solution converged in six iterations and was subsequently validated by randomly dividing the sample and repeating all of the procedures. The results of these two analyses were compared with the original solution, and were found to be consistent in both the number of groups that emerged from the data as well as the similarity in cluster profiles.

A criterion z score of ± 0.5 (e.g., Harwood, Cumming, & Fletcher, 2004; Hodge & Petlichkoff, 2000; Wang & Biddle, 2001) was employed to label the cluster centers of each group as *low*, *moderate*, or *high* for each perfectionism subscale. That is, z scores ranging between $-.5$ to $+.5$ were assigned a *moderate* label. Scores above this range were labeled as *high*, where as scores falling below this range were labeled as *low*. Of the original 250 participants, nine were excluded for falling outside the Mahalanobis distance cutoff values, and two were discarded due to incomplete data sets. Of the remaining 239 participants, Cluster 1 was found to contain 36 dancers (15.06% of the sample) with low scores on every subscale. The 106 dancers in Cluster 2 (44.35%) had moderate scores on every subscale. Finally, Cluster 3 contained 97 dancers (40.59%) with high scores on every subscale except *high standards for others* and *planfulness*, which were labeled as moderate.

A MANOVA confirmed that significant multivariate differences existed between the cluster groups on their scores on the perfectionism subscales: Pillai's Trace = 0.91, $F(14, 374) = 22.36$, $p < .001$, partial $\eta^2 = 0.46$. Significant univariate effects for *concern over mistakes*, $F(2, 192) = 113.07$, $p < .001$, partial $\eta^2 = 0.54$; *need for approval*, $F(2, 192) = 97.90$, $p < .001$, partial $\eta^2 = 0.51$; *high standards for others*, $F(2, 192) = 27.06$, $p < .001$, partial $\eta^2 = 0.22$; *perceived teacher pressure*, $F(2, 192) = 51.65$, $p < .001$, partial $\eta^2 = 0.35$; *planfulness*, $F(2, 192) = 35.02$, $p < .001$, partial $\eta^2 = 0.27$; *striving for excellence*, $F(2, 192) = 70.23$, $p < .001$, partial $\eta^2 = 0.42$; and *rumination*, $F(2, 192) = 130.71$, $p < .001$, partial $\eta^2 = 0.58$ were

Table 1 Bivariate Correlations and Cronbach's Alpha Statistics for Perfectionism, Imagery, and Anxiety Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Concern over mistakes		(0.86)												
Need for approval	0.70**		(0.85)											
Perceived teacher pressure	0.37**	0.33**		(0.78)										
Rumination	0.76**	0.69**	0.41**		(0.83)									
Striving for excellence	0.44**	0.37**	0.54**	0.58**		(0.74)								
Planfulness	0.29**	0.37**	0.29**	0.28**	0.29**		(0.83)							
High standards for others	0.29**	0.20**	0.26**	0.27**	0.25**	0.16*		(0.83)						
Facilitative imagery	-.02	0.04	0.35**	0.09	0.25**	0.14*	0.20**		(0.89)					

(continued)

Table 1 (continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Debilitative imagery	0.47**	0.40**	0.23**	0.39**	0.15*	0.01	0.09	0.06	(0.88)					
Cognitive anxiety intensity	0.48**	0.49**	0.22**	0.47**	0.22**	0.12	-0.01	-0.03	0.56**	(0.87)				
Cognitive anxiety direction	-0.18**	-0.20**	-0.17*	-0.23**	-0.11	-0.04	0.01	0.01	-0.12	-0.33**	(0.84)			
Somatic anxiety intensity	0.37**	0.33**	0.22**	0.33**	0.11	0.21**	0.05	-0.05	0.41**	0.62**	-0.29**	(0.79)		
Somatic anxiety direction	-0.13	-0.21**	-0.02	-0.15*	-0.05	-0.02	-0.06	0.07	-0.15*	-0.33**	0.68**	-0.20**	(0.76)	
Self- confidence	-0.35**	-0.29**	-0.04	-0.28**	-0.02	-0.06	0.13*	0.21**	-0.28**	-0.51**	0.26**	-0.50**	0.20**	(0.86)

Note. Cronbach's alpha statistics are displayed in brackets on the diagonal.

found. In line with the assigned *low*, *moderate*, and *high* labels, Tukey HSD post hoc tests revealed that dancers in Cluster 3 reported significantly higher scores than dancers in Cluster 2, who in turn reported significantly higher scores than dancers in Cluster 1 for all subscales except *high standards for others* and *planfulness*. For these subscales, no significant difference was found in the scores reported by dancers in Cluster 2 and Cluster 3. Each cluster was then named according to their aforementioned profile. Dancers in Cluster 1 were labeled as having *no perfectionistic tendencies* because of their low scores on every subscale. Similarly, dancers in Cluster 2 were considered to exhibit *moderate perfectionistic tendencies*. Dancers in Cluster 3 were labeled as having *perfectionistic tendencies* due to their consistently high scores.

Relative vs. Absolute Scores

The labels above are data-driven in that they were chosen to represent the standardized (relative) scores for each group. However, it is important to note that each cluster still represents a range of scores (see Table 2 for standard deviations), and thus the term “perfectionist” was not used, even for the cluster with the highest scores. As encouraged by Hodge and Petlichkoff (2000), we examined the actual strength of the participants’ ratings by interpreting the unstandardized (absolute) scores. We did this on a case-by-case basis by calculating the number of individuals who yielded average scores ≥ 4 for every subscale; this represents dancers who *agree somewhat* or *strongly agree* with the PI items. Nineteen dancers did so for conscientious perfectionism and 30 for self-evaluative perfectionism. Only eight dancers did so for both.

Cluster Membership

The demographic characteristics of each cluster group were examined next. Four separate 1-way ANOVAs indicated that no differences existed between cluster groups in their age, years of experience in their main dance type, total numbers of years dancing in any dance type, and the average number of hours they currently danced per week. Chi square tests also indicated that there was an equal distribution of dancers across cluster groups according to their country of dance training (Australia, Canada, or England), dance type (ballet or contemporary), and their type of school (conservatoire, university, or vocational school). However, a significant chi square test result was found for gender: $\chi^2(2) = 13.38, p = 0.001$, indicating an uneven distribution of males and females across cluster groups. Examination of the actual and expected frequencies suggested that more males than expected reported no perfectionistic tendencies; conversely, more females than expected reported perfectionistic tendencies. Demographic characteristics and the unstandardized means, standard deviations, and standardized scores for all perfectionism subscales are reported in Table 2 according to cluster group.

Group Differences

Facilitative and Debilitative Imagery. A MANOVA determined whether the cluster groups (independent variable) differed in their facilitative and debilitative imagery (dependent variables). An overall multivariate effect was found, Pillai’s

Table 2 Cluster Profiles

	Cluster Groups											
	No Perfectionistic Tendencies (<i>n</i> = 36)				Moderate Perfectionistic Tendencies (<i>n</i> = 106)				Perfectionistic Tendencies (<i>n</i> = 97)			
	<i>M</i>	<i>SD</i>	<i>z</i>	<i>M</i>	<i>SD</i>	<i>z</i>	<i>M</i>	<i>SD</i>	<i>z</i>	<i>M</i>	<i>SD</i>	<i>z</i>
Demographics												
Age	19.22	2.61		19.57	3.16		19.22	2.61				
Years of dance experience	11.97	4.02		12.40	4.43		11.97	4.02				
Hours currently danced per week	26.53	8.97		26.14	7.89		26.00	6.82				
Perfectionism Subscales												
Concern over mistakes	1.90 ^{ab}	0.60	-0.96	2.34 ^b	0.55	-0.46	3.43	0.59	0.87			
Need for approval	2.62 ^{ab}	0.74	-1.05	3.23 ^b	0.67	-0.37	4.21	0.48	0.80			
High standards for others	1.93 ^{ab}	0.70	-0.98	2.84	0.66	0.07	3.09	0.85	0.29			
Perceived teacher pressure	2.90 ^{ab}	0.54	-1.06	3.44 ^b	0.52	-0.21	3.96	0.52	0.63			
Planfulness	2.79 ^{ab}	0.66	-1.03	3.47 ^b	0.57	-0.08	3.86	0.64	0.45			
Striving for excellence	2.88 ^{ab}	0.65	-1.23	3.55 ^b	0.57	-0.20	4.13	0.41	0.68			
Rumination	2.23 ^{ab}	0.60	-1.25	2.95 ^b	0.57	-0.36	3.91	0.49	0.84			

Note: ^a = significantly lower than the moderate perfectionistic tendencies group; ^b = significantly lower than the perfectionistic tendencies group; Scale range for perfectionism subscales is 1–5, *N* = 239 final participants.

Trace = 0.10, $F(4, 414) = 5.20$, $p < .001$, partial $\eta^2 = 0.05$. At the univariate level, significant difference between the cluster groups was found for only for debilitating imagery, $F(2, 207) = 9.49$, $p < .001$, partial $\eta^2 = 0.08$. A Tukey HSD post hoc test revealed that the perfectionistic tendency group reported more debilitating imagery than the other two groups.

Trait Anxiety and Self-Confidence. A second MANOVA was carried out to determine whether differences existed between the cluster groups (independent variable) in trait cognitive anxiety (intensity and direction), trait somatic anxiety (intensity and direction), and trait self-confidence (dependent variables). A significant multivariate effect was found: Pillai's Trace = 0.21, $F(10, 380) = 4.46$, $p < .001$, partial $\eta^2 = 0.11$, followed by significant univariate effects for cognitive anxiety intensity, $F(2, 193) = 15.81$, $p < .001$, partial $\eta^2 = 0.14$; somatic anxiety intensity, $F(2, 193) = 10.12$, $p < .001$, partial $\eta^2 = 0.10$; somatic anxiety direction, $F(2, 193) = 7.05$, $p = 0.001$, partial $\eta^2 = 0.07$; and self-confidence, $F(2, 193) = 5.61$, $p = 0.004$, partial $\eta^2 = 0.06$. Tukey HSD post hoc tests indicated that dancers in the group with perfectionistic tendencies reported a significantly higher intensity of both cognitive and somatic anxiety and lower self-confidence than the other two groups. The group with no perfectionistic tendencies viewed their somatic anxiety symptoms as more facilitative to performance than the other two groups. The unstandardized means and standard deviations for the imagery, trait anxiety, and self-confidence subscales are reported in Table 3 according to cluster group.

Table 3 Mean Differences in Imagery and Trait Performance Anxiety and Self-Confidence According to Cluster Groups

	Cluster Groups					
	No Perfectionistic Tendencies ($n = 36$)		Moderate Perfectionistic Tendencies ($n = 106$)		Perfectionistic Tendencies ($n = 97$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Imagery						
Facilitative	4.95	1.00	5.19	0.76	5.23	0.83
Debilitative	2.70 ^b	0.73	2.92 ^b	0.86	3.40	1.06
Trait Performance Anxiety						
Cognitive anxiety (intensity)	18.74 ^b	5.66	20.47 ^b	5.45	24.47	5.76
Cognitive anxiety (direction)	-0.13	9.48	-3.51	11.11	-5.08	9.96
Somatic anxiety (intensity)	18.13 ^b	4.19	19.34 ^b	4.81	22.01	4.82
Somatic anxiety (direction)	3.32 ^{ab}	6.72	-1.88	7.62	-1.84	6.48
Self-confidence	24.23 ^b	4.38	23.49 ^b	5.07	21.27	5.22

Note: ^a = significantly different from the moderate perfectionistic tendencies group; ^b = significantly different from the perfectionistic tendencies group. $N = 239$ final participants.

Discussion

The aim of the current study was to examine the prevalence of perfectionism among elite ballet and contemporary dancers using a cluster analytic approach. In addition, links between perfectionism and two potential correlates were explored, namely imagery and anxiety. It was found that three distinct groups emerged from the sample data: one with perfectionistic tendencies, one with moderate tendencies, and one with no such tendencies. The existence of three clusters is consistent with previous research (e.g., Rice & Ashby, 2007), but the profiles of these clusters are unique in that they appear to exist on a continuum from low to high scores on perfectionism and correlates. By contrast, Rice and Ashby identified nonperfectionists, maladaptive perfectionists, and adaptive perfectionists. Overall, the prevalence may be considered high, with 40.59% of the current sample forming the perfectionistic tendencies cluster and only 15.06% classed as reporting no such tendencies. While this is the first study of its kind to examine prevalence of perfectionism among dancers, the results do support anecdotal claims that elite dancers are often perfectionistic (e.g., Hamilton, 1998; Sharp, 2005). It is important to note, however, that the label “perfectionist” is not a definite one because there is no cut-off value above which persons may be considered perfectionists and below which persons may be considered nonperfectionists. Doing so is currently impossible because neither the PI (Hill et al., 2004) nor any other existing perfectionism questionnaire acts as a validated diagnostic tool. We therefore opted for the term “perfectionistic tendencies” rather than “perfectionists.” To explore the notion of prevalence further, we therefore also calculated the number of individuals who displayed consistently high scores across the subscales of the PI said to comprise conscientious and self-evaluative perfectionism. Only a small portion of the sample did so (19 for conscientious and 30 for self-evaluative), and only a very small subgroup (3.2%) scored highly for both forms of perfectionism. Altogether, these findings suggest that “true” perfectionism is rare, but that elements of perfectionism are common among high-level ballet and contemporary dancers. Still, since multiple measures of perfectionism exist and controversy remains over what perfectionism really is, these findings should be interpreted with some caution. For instance, the PI includes subscales relating to rumination and need for approval, and the aforementioned analysis would have required dancers to score highly for these constructs to be labeled as perfectionists. By contrast, measures such as the MPS (Frost et al., 1990; Hewitt & Flett, 1991) do not include subscales capturing these constructs and thus high scores on the MPS could perhaps be yielded by a different proportion of individuals.

We were also interested in examining whether any differences in prevalence existed between the two dance forms and found that there was equal representation of dancers training in ballet and contemporary dance across all cluster groups. This is a valuable finding given the criticisms that are sometimes leveled at ballet (i.e., that it can be more authoritarian, inflexible, and appearance-focused than contemporary dance; Jackson, 2005; Morris, 2003). Further research is required to better establish which elements of both personality (e.g., self-esteem) and environment (e.g., the motivational climate, leadership styles) may affect dancers’ perfectionism over time and whether such variables differ between dance styles. Findings further

indicated that dancers with perfectionistic tendencies did not differ from those with moderate tendencies nor those with no perfectionistic tendencies on most demographic information such as age, years of dance experience, hours spent training, country of dance training, or type of school (conservatoire, university, or vocational school). The multicountry design of our study lends validity to our finding that elements of perfectionism are prevalent in the Western elite dance training of today and is not specific to a particular country or dance genre. The only demographic variable that did differ between clusters was gender, revealing that the male dancers reported fewer perfectionistic tendencies than did the female dancers. It is possible that this finding is due to the lower numbers of males in dance, which means less competition for placement in top schools, roles, and jobs, but this issue requires further exploration.

It was clear that dancers with perfectionistic tendencies fared less well than their peers without such tendencies on the correlates examined, and that perfectionistic tendencies do not need to be particularly strong in order for difficulties to be apparent. For instance, they reported experiencing more debilitating imagery, greater intensities of both cognitive and somatic anxiety, and lower self-confidence than other groups. Moreover, they perceived their somatic anxiety as predominantly debilitating, while the group with no perfectionistic tendencies perceived it to be mostly facilitative. These findings extend previous research on perfectionism and anxiety in sport and the arts (e.g., Carr & Wyon, 2003; Frost & Henderson, 1991; Hall et al., 1998; Koivula et al., 2002; Martinent & Ferrand, 2007; Mor et al., 1995; McLean & Sharp, 1999) beyond examining intensity of symptoms, to highlighting that differences between those with and without perfectionistic tendencies also exist with regards to anxiety direction. Findings also extend the research concerning perfectionistic cognitions and imaginal processes (Flett et al., 1998; Frost & Henderson; Liston et al., 2003) into dance.

Interestingly, no significant differences emerged between the cluster groups on facilitative imagery; this suggests that although those with perfectionistic tendencies reported a greater striving for excellence than the other dancers, this was not matched by a greater use of imagery as a performance enhancement strategy. Instead, the groups differed on their debilitating imagery. More generally, the current study began to address the lack of research into debilitating imagery by establishing that elite dance students do not experience such images particularly often (see Table 3), but that dancers with perfectionistic tendencies do so more often than their peers without such tendencies. Further research is required to establish how dancers may learn to reduce the incidence of intrusive debilitating images while deliberately generating facilitative ones. They might, for instance, benefit from using imagery after rehearsals and performances that focuses not on what went wrong (i.e., rumination) but on what went well and why, as well as on constructive planning for future improvements. Moreover, it would be beneficial to extend the study of clinical perfectionism to sport and dance. For instance, it has been argued that eating disorders are a direct expression of such perfectionism (Shafran, Cooper, & Fairburn, 2002), and there is a greater prevalence of eating disorders in dance and aesthetic sports than in the general population (Smolak, Murnen, & Ruble, 2000).

It was clear that the group of dancers scoring midway between the perfectionistic tendency group and the group with no such tendencies on the perfectionism constructs also did so with regard to imagery and anxiety. This set of findings suggests that one does not have to be a "complete perfectionist" to suffer from some

of the associated debilitating characteristics. Simple bivariate correlations further supported such a conclusion, making it clear that the more a dancer reports certain aspects of perfectionism (i.e., the self-evaluative aspects) the more likely he or she is to also experience low self-confidence, heightened anxiety intensities, and interpret such intensities as being debilitating. Correlation analyses also clarified that striving for excellence was positively related to the more self-evaluative aspects of perfectionism and to cognitive anxiety and debilitating imagery (although the latter relationships were weaker).

Striving for excellence was unrelated to self-confidence and positively, though not strongly, related to facilitative imagery. Thus, at least when conceptualized in this manner, striving for excellence could not be considered a positive form of achievement striving. This contradicts the work of some researchers who have found that there exists a positive form of perfectionism, characterized by such a striving for excellence, or even a striving for perfection (e.g., Bergman et al., 2007; Hall et al., 1998; Kronvall Parkinson et al., 2007; Rice & Ashby, 2007; Slade & Owens, 1998; Stoeber & Otto, 2006). Instead, the findings are more congruent with the argument of Flett and Hewitt (2006) that even seemingly positive strivings to excel emerge from unhealthy origins such as fears of failing or a desire to avoid imperfections. Of course, this is speculative, as the current study was not designed to examine the origins of perfectionism, and our findings may be sample-specific or explained by our measurement approach. Nevertheless, it is interesting that no cluster emerged comprising dancers who reported high scores for striving for excellence (or, indeed, other conscientious perfectionism aspects) yet low scores on the self-evaluative aspects.

It is important to note that we captured perfectionism without the organization subscale and chose a domain-specific approach by instructing our participants to focus on their lives in and around dance, rather than their lives in general. Moreover, we focused on dance teacher pressures rather than parental pressures. These alterations likely mean that we yielded somewhat different results compared with what may have emerged if we used the PI in the original form or used another measurement tool. Despite these limitations, we believe that the study adds to the literature by using a tool that strives to integrate two measurement traditions (i.e., the two MPS questionnaires; Frost et al., 1990; Hewitt & Flett, 1991) and that was partly based on research indicating that perfectionism is domain-specific (Dunn et al., 2005).

Conclusion

The present study found that elements of perfectionism are prevalent among preprofessional ballet and contemporary dance students training in one of three countries: England, Canada, and Australia. However, the conceptualization of perfectionism is critical because only a very small minority of our sample reported high scores on every single aspect of perfectionism. Cluster analyses identified three distinct sample groups. Dancers with perfectionistic tendencies reported the most debilitating imagery, greater anxiety intensities, less facilitative interpretations of their somatic anxiety, and lower levels of self-confidence. Dancers with no such tendencies reported more favorable characteristics, while a cohort labeled as having moderate perfectionistic tendencies reported moderate scores on these constructs. The research extends previous work in both sport and

dance and suggests that research could usefully begin to design interventions to help performers cope with perfectionism and its correlates, such as debilitating images and anxiety.

Acknowledgments

The authors are grateful to dancers and school directors for their time and to Frances Clarke and Gene Moyle for their assistance with data collection. A previous version of this manuscript was presented at the 18th annual meeting of the International Association for Dance Medicine and Science, Cleveland, Ohio, October 2008.

References

- Albrecht, R.R., & Feltz, D.L. (1987). Generality and specificity of attention related to competitive anxiety and sport performance. *Journal of Sport Psychology, 9*, 231–246.
- Bergman, A.J., Nyland, J.E., & Burns, L.R. (2007). Correlates with perfectionism and the utility of a dual process model. *Personality and Individual Differences, 43*, 389–399.
- Carr, S., & Wyon, M. (2003). Motivational climate and goal orientations, trait anxiety and perfectionism in dance students. *Journal of Dance Medicine and Science, 7*, 105–114.
- Ciolkovitch, H. (2008). *The great stages of his life*. Retrieved 2nd February 2010 from www.nureyev.org/rudolf-nureyev-memories-interviews/rudolf-nureyev-anniversary-2008.
- Dunn, J.G.H., Gotwals, J.K., & Dunn, J.C. (2005). An examination of the domain specificity of perfectionism among intercollegiate student-athletes. *Personality and Individual Differences, 38*, 1439–1448.
- Flett, G.L., & Hewitt, P.L. (2006). Positive versus negative perfectionism in psychopathology. *Behavior Modification, 30*, 472–495.
- Flett, G.L., Hewitt, P.L., Blankstein, K.R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology, 75*, 1363–1381.
- Frost, R.O., & DiBartolo, P.M. (2002). Perfectionism, anxiety, and obsessive-compulsive disorder. In G.L. Flett, & P.L. Hewitt (Eds.), *Perfectionism: Theory, Research and Treatment* (pp. 341–371). Washington, DC: American Psychological Association.
- Frost, R.O., & Henderson, K.J. (1991). Perfectionism and reactions to athletic competition. *Journal of Sport & Exercise Psychology, 13*, 323–335.
- Frost, R.O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449–468.
- Gore, P.A. (2000). Cluster analysis. In H.E.A. Tinsley & S.D. Brown (Eds.), *Handbook of applied multivariate statistics and mathematical modeling* (pp. 297–321). San Diego, CA: Academic Press.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology, 14*, 172–204.
- Grzegorek, J.L., Slaney, R.B., Franze, S., & Rice, K.G. (2004). Self-criticism, dependency, self-esteem, and grade point average satisfaction among clusters of perfectionists and nonperfectionists. *Journal of Counseling Psychology, 51*, 192–200.
- Haase, A.M., Prapavessis, H., & Owens, R.G. (2002). Perfectionism, social physique anxiety and disordered eating: A comparison of male and female elite athletes. *Psychology of Sport and Exercise, 3*, 209–222.
- Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (2005). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Hall, H.K., Kerr, A.W., & Matthews, J. (1998). Precompetitive anxiety in sports: The contribution of achievement goals and perfectionism. *Journal of Sport & Exercise Psychology, 20*, 194–217.

- Hamilton, L.H. (1998). *Advice for dancers*. San Francisco: Jossey-Bass.
- Hanton, S., Neil, R., & Mellalieu, S.D. (2008). Recent developments in competitive anxiety direction and competition stress research. *International Review of Sport and Exercise Psychology, 1*, 45–57.
- Harwood, C., Cumming, J., & Fletcher, D. (2004). Motivational profiles and psychological skills use within elite youth sport. *Journal of Applied Sport Psychology, 16*, 318–332.
- Hewitt, P.L., & Flett, G.L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*, 456–470.
- Hill, R.W., Huelsman, T.J., Furr, R.M., Kibler, J., Vicente, B.B., & Kennedy, C. (2004). A new measure of perfectionism: The Perfectionism Inventory. *Journal of Personality Assessment, 82*, 80–91.
- Hodge, K., & Petlichkoff, L. (2000). Goal profiles in sport motivation: A cluster analysis. *Journal of Sport & Exercise Psychology, 22*, 256–272.
- Jackson, J. (2005). My dance and the ideal body: Looking at ballet practice from the inside out. *Research in Dance Education, 6*, 25–40.
- Jones, G., & Swain, A.B.J. (1992). Intensity and direction dimensions of competitive state anxiety and relationships with competitiveness. *Perceptual and Motor Skills, 74*, 467–472.
- Jones, G., & Swain, A. (1995). Predispositions to experience debilitating and facilitative anxiety in elite and non-elite performance. *The Sport Psychologist, 9*, 201–211.
- Koivula, N., Hassmén, P., & Fallby, J. (2002). Self-esteem and perfectionism in elite athletes: Effects on competitive anxiety and self-confidence. *Personality and Individual Differences, 32*, 865–875.
- Krasnow, D., Mainwaring, L., & Kerr, G. (1999). Injury, stress, and perfectionism in young dancers and gymnasts. *Journal of Dance Medicine and Science, 3*, 51–58.
- Kronvall Parkinson, M., Hanrahan, S.J., Stanimirovic, R., & Sharp, L. (2007). *The effects of perfectionism and physical self-concept on pre-performance anxiety in elite female gymnasts, basketball players, and ballet dancers*. Presented at the 17th Annual Meeting of the International Association for Dance Medicine and Science, Canberra Australia.
- Liston, M., Frost, A.A.M., & Mohr, P.B. (2003). The prediction of musical performance anxiety. *Medical Problems of Performing Artists, 18*, 120–126.
- Martens, R., Vealey, R.S., Burton, D., Bump, L., & Smith, D.E. (1990). Development and validation of the Competitive Sports Anxiety Inventory-2. In R. Martens, R.S. Vealey, & D. Burton (Eds.), *Competitive anxiety in sport* (pp. 117–178). Champaign, IL: Human Kinetics.
- Martinet, G., & Ferrand, C. (2007). A cluster analysis of precompetitive anxiety: Relationship with perfectionism and trait anxiety. *Personality and Individual Differences, 43*, 1676–1686.
- McLean, N., & Sharp, L. (1999). *Performance anxiety: The roles of perfectionism, anxiety sensitivity, and cognitive appraisal*. Presented at the 13th Annual Meeting of the International Association for Dance Medicine and Science, Laban, London.
- Mellalieu, S.D., Hanton, S., & O'Brien, M. (2004). Intensity and direction of competitive anxiety as a function of sport type and experience. *Scandinavian Journal of Medicine & Science in Sports, 14*, 326–334.
- Mor, S., Day, H.I., Flett, G.L., & Hewitt, P.L. (1995). Perfectionism, control, and components of performance anxiety in professional artists. *Cognitive Therapy and Research, 19*, 207–225.
- Morris, G. (2003). Problems with ballet: Steps, style and training. *Research in Dance Education, 4*, 17–30.
- Murphy, S.M., Nordin, S.M., & Cumming, J. (2008). Imagery in sport, exercise, and dance. In T. Horn (Ed.), *Advances in sport psychology* (3rd ed.). Champaign, IL: Human Kinetics.
- Nordin, S.M., & Cumming, J. (2005). Professional dancers describe their imagery: Where, when, what, why, and how. *The Sport Psychologist, 19*, 395–416.

- Nordin, S.M., & Cumming, J. (2006). Measuring the content of dancers' images: Development of the Dance Imagery Questionnaire (DIQ). *Journal of Dance Medicine and Science, 10*, 85–98.
- Nordin, S.M., & Cumming, J. (2008). Exploring common ground: Comparing the imagery of dancers and aesthetic sport performers. *Journal of Applied Sport Psychology, 20*, 375–391.
- Parker, W.D. (1997). An empirical typology of perfectionism in academically talented children. *American Educational Research Journal, 34*, 545–562.
- Rice, K.G., & Ashby, J.S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology, 54*, 72–85.
- Rice, K.G., & Slaney, R.B. (2002). Clusters of perfectionists: Two studies of emotional adjustment and academic achievement. *Measurement & Evaluation in Counseling & Development, 35*, 35–48.
- Shafran, R., Cooper, Z., & Fairburn, C.G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research and Therapy, 40*, 773–791.
- Sharp, L. (2005). *Psychological skills training among elite level ballet dancers*. Paper presented at the Congress of the International Society for Sport Psychology, Sydney, Australia.
- Slade, P.D., & Owens, R.G. (1998). A dual process model of perfectionism based on reinforcement theory. *Behavior Modification, 22*, 372–390.
- Smolak, L., Murnen, S.K., & Ruble, A.E. (2000). Female athletes and eating problems: A meta-analysis. *The International Journal of Eating Disorders, 27*, 371–380.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review, 10*, 295–319.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn and Bacon.
- Tashman, L.S. (2005). *The relationship between perfectionism and burnout in coaches*. Florida State University: Unpublished dissertation.
- Terry-Short, L.A., Owens, R.G., Slade, P.D., & Dewey, M.E. (1995). Positive and negative perfectionism. *Personality and Individual Differences, 18*, 663–668.
- Walker, I.J., & Nordin-Bates, S.M. (2010). The importance of control: Performance anxiety experiences of professional ballet dancers. *Journal of Dance Medicine and Science, 14*(4), 133–145.
- Wang, C.K.J., & Biddle, S.J.H. (2001). Young people's motivational profiles in physical activity: A cluster analysis. *Journal of Sport & Exercise Psychology, 23*, 1–22.
- Wang, K.T., Slaney, R.B., & Rice, K.G. (2007). Perfectionism in Chinese university students from Taiwan: A study of psychological well-being and achievement motivation. *Personality and Individual Differences, 42*, 1279–1290.