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Mindfulness, recovery-stress balance, and wellbeing among university dance students

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Abstract

Dance students face many physical and psychological stressors in their training and daily lives, therefore methods for coping with stress are essential for performance enhancement and general wellbeing. This study aimed to investigate the relationships between mindfulness, stress, recovery, and wellbeing among university level vocational dance students. Seventy-two dance students at two [removed for blind review] universities completed online self-report measures of mindfulness, recovery-stress states, and affect. Correlation coefficients indicated a significant positive relationship between mindfulness and positive affect, and significant negative relationships between mindfulness and stress, and mindfulness and negative affect. MANOVA revealed differences between high mindfulness and low mindfulness groups on general stress, negative affect, and dance-specific recovery. The findings suggested that low mindfulness may be a risk factor for stress in general, and improvements in mindfulness may provide a protective buffer for students coping with a vast array of general and dance-specific demands.

Keywords: dance training, overtraining, performance enhancement, underrecovery.

Introduction

Success in elite level dance requires significant time and effort dedicated to dance training. Students in pre-professional, or vocational, dance training programs undertake heavy training loads that often increase during rehearsal and performance seasons (Grove, Main, and Sharp 2013, Wyon 2010). Large training loads and inadequate recovery may result in negative training

outcomes such as overtraining, burnout, and increased injury risk (Kellmann 2002, Richardson, Andersen, and Morris 2008). Blevins and colleagues (2019, 2020) argue that in addition to high training demands, dance students also face psychosocial stress related to interpersonal relationships, academic demands, environmental factors, and competition within the dance training environment. The ability to cope with, and recover from, multifaceted stressors is imperative to maintaining and improving performance and wellbeing (Heidari et al. 2018). Research by Kaisler and colleagues (2017) and Petterson and Olson (2017) involving collegiate athletes and elite sport performers suggested that mindfulness was an effective mechanism for assisting individuals to mitigate effects of stress. Likewise, research has indicated a link between mindfulness and wellbeing (Baltzell and Akhtar 2014, Vidic, St. Martin, and Oxhandler 2017). Therefore, the present study aimed to investigate the relationship between recovery-stress balance, mindfulness, and wellbeing among university level vocational dance students.

Mindfulness has been shown to be beneficial in reducing stress, anxiety, depression, and chronic pain in both clinical and non-clinical populations (Noetel et al. 2017) across several domains, including health, psychology, education, and sport (Baer 2003). Definitions of mindfulness vary, however, most contain elements of Kabat-Zinn's conceptualisation of mindfulness as "moment-to-moment, non-judgemental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as non-reactively, as non-judgementally, and as openheartedly as possible." (2015, p. 1). Brown and Ryan (2003) posit that attention to, and awareness of, the present moment are key foundations of any definition of mindfulness, and while not a primary goal of mindfulness, studies have shown that a reduction in stress is a positive side-effect of mindfulness practice (Palmer and Rodger 2009, Petterson and Olson 2017). Furthermore, when mindfulness is increased, elite performers report greater ability to

focus on the task at hand, reduced performance anxiety and stress around their performance and task demands, and improved wellbeing (Bühlmayer et al. 2017, Sappington and Longshore 2015). Röthlin and colleagues (2016) argue that mindfulness skills provide athletes with a way to cope with the demands of elite performance and enhance the acquisition and delivery of key skills, therefore it is feasible that mindfulness skills would have a similar complementary effect in dancers.

Gardner and Moore (2017) suggest that mindfulness is beneficial for both athletic performance enhancement and psychological wellbeing. Mindfulness and acceptance approaches to performance enhancement differ from psychological skills training, whereby the focus is on acceptance of current states, rather than attempts to control thoughts or feelings (Gardner and Moore 2012). Research with elite junior athletes and collegiate athletes has shown that greater dispositional mindfulness provides a buffer against stress (Gustafsson et al. 2015), and that mindfulness interventions can have a positive impact on performance outcomes and stress levels (Pettersson and Olson 2017). Pre-professional dance environments are comparable to collegiate athlete training environments, therefore similar results may be found when applying mindfulness investigations used in sport research into a dance context. The present study examined the relationship between stress, recovery, and mindfulness in a pre-professional dance training context as a preliminary step in understanding how pre-professional dancers may be supported in more effectively dealing with the physical and psychosocial demands of their dance training.

In addition to performance enhancement, mindfulness has also been shown to have a positive association with indices of psychological wellbeing, such as increased positive affect and decreased negative affect (Bajaj and Pande 2016, Brown and Ryan 2003, Keng, Smoski, and Robins 2011, Schutte and Malouff 2011). Brown and Ryan (2003) demonstrated a relationship

between mindfulness and emotional-subjective wellbeing among university students and adults, with a stronger relationship observed between mindfulness and negative affect, versus mindfulness and positive affect. This means that rather than increasing feelings of happiness, mindfulness may instead assist with mitigating negative emotional experiences and assist individuals to find emotional balance. While positive and negative affect have been used in dance research as an indicator of wellbeing and ill-being respectively (Quested and Duda 2010, 2009), a review of the literature has suggested that this is the first study to examine wellbeing in relation to mindfulness, stress, and recovery among dance students.

Recovery-stress states

One way that individuals can deal with the stress encountered in high performance situations is to enhance recovery activities to counteract the stress experienced. Recovery refers to the ability to restore resources to maintain homeostasis, and is achieved via a gradual process of reducing, altering, or removing stress experienced (Heidari et al. 2018). Recovery-stress imbalance may occur when the recovery strategies undertaken are insufficient to overcome the physical and psychological demands experienced. Kellmann (2002) argues that recovery-stress balance is also sensitive to the multifaceted demands of elite training, and may be affected by overwhelming demands in training, lifestyle, environment, or health. For dance students, these demands may include training loads increasing prior to performance (without an adequate break), poor sleep or nutrition, relationships with teachers and peers, or injury status. The inability to achieve recovery-stress balance over the long-term may lead to undesirable outcomes such as underrecovery, overtraining syndrome, and burnout (Gustafsson et al. 2008, Heidari et al. 2018, Meeusen et al. 2013). Overtraining syndrome and burnout result from a chronic imbalance between stress and recovery, and require longer and more intensive recovery strategies to return

to homeostatic balance, including medical intervention and taking a break from sport participation (Heidari et al. 2018). Thus, it is important to identify ways for dance students to manage stress encountered during pre-professional training to achieve recovery-stress balance and avoid underrecovery and more serious maladaptations to training demands.

While the benefits of mindfulness in elite sport have been observed, there has been little enquiry into the effects of mindfulness in a dance-specific context. Research by Moyle (2016) demonstrated positive trends for tertiary dance students participating in mindfulness training within dance training curriculum, however, the results of this study were not statistically significant. Thus, the purpose of the present study was to examine the relationship between mindfulness, stress, recovery, and wellbeing in pre-professional dance students, to better understand the role mindfulness may play in reducing stress and supporting recovery and wellbeing in elite dance training. Specifically, the study aimed to test the hypotheses that a significant positive correlation would exist between mindfulness and recovery, and mindfulness and positive affect; and conversely that a significant negative correlation would exist between mindfulness and stress, and mindfulness and negative affect. Furthermore, it was hypothesised that individuals reporting higher levels of mindfulness would report significantly higher levels of recovery and positive affect, and lower levels of stress and negative affect, when compared with individuals reporting low levels of mindfulness. By building on existing evidence from sport research and identifying findings regarding the relationship between mindfulness, recovery-stress balance, and wellbeing in a dance context, this study may assist dance students and teachers to understand the benefits of including mindfulness within dance training.

Methods

Participants

Following ethical approval, the dance departments at two [removed for blind review] universities were contacted seeking permission to distribute questionnaires to dance students. A total of 211 students were sent an email with a link to the questionnaire pack which included an information sheet, background questionnaires, the Mindful Attention Awareness Scale (Brown and Ryan 2003), Recovery-Stress Questionnaire for Athletes (Kellmann and Kallus 2001), and Positive and Negative Affect Schedule (Watson, Clark, and Tellegen 1988). A total of 76 students started the questionnaire providing a response rate of 36%, with 72 completed and included in the study.

Instrumentation

Background questionnaire

Participants were asked to provide background information on their age, gender, year in dance program, course name, institution, primary dance genre, previous mindfulness activities, and current mindfulness practice.

Mindful attention awareness scale (MAAS)

The MAAS (Brown and Ryan 2003) is a measure of dispositional mindfulness. The scale consists of 15 items measured on a 6-point Likert scale ranging from 1 (*Almost always*) to 6 (*Almost never*). Scores for each item are summed to produce an overall mindfulness score, with higher scores indicating higher levels of mindfulness. The MAAS has demonstrated reliability and validity in previous research (Brown and Ryan 2003).

Recovery-stress questionnaire – Sport (RESTQ-Sport)

The RESTQ-Sport questionnaire (Kellmann and Kallus 2001) is a measure of an individual's perceived stress and recovery, measured on a 7-point Likert scale ranging from 0

(*Never*) to 6 (*Always*). Participants were asked to rate how often each statement was true for them over the previous five days. The questionnaire is comprised of seven sub-scales (general stress, social stress, emotional stress, conflicts/pressure, physical complaints, fatigue, lack of energy) combined to produce an overall general stress score; five subscales (general wellbeing, social recovery, physical recovery, success, sleep) to produce an overall general recovery score; three subscales (injury, emotional exhaustion, disturbed breaks) combined to produce an overall sport-specific stress score; and four subscales (being in shape, self-regulation, personal accomplishment, self-efficacy) combined to produce an overall sport-specific recovery score. For the purposes of this study, the wording of the sport-specific items were slightly altered to more accurately reflect situations that the dance students might have encountered (e.g., the item “I felt burned out by my sport” was changed to “I felt burned out by dancing”). Likewise, references to “training” in the questions were changed to “class/rehearsal/performance.” Higher scores on the stress scales indicated higher perceived level of stress, whereas higher mean scores on the recovery scales indicated higher perceived recovery.

Positive and negative affect schedule (PANAS)

The PANAS (Watson, Clark, and Tellegen 1988) assessed the extent to which the participants experienced positive affect (e.g., “excited”) and negative affect (e.g., “irritable”). Participants were presented with 20 words describing various positive and negative mood states and were asked to rate the extent to which they had felt that way over the past few weeks. Responses were measured on a 5-point Likert scale ranging from 1 (*Not at all*) to 5 (*Extremely*). Positive affect was measured by 10 items and negative affect by 10 items. Each of the scales were summed to produce a total score for positive and negative affect. The PANAS has been

used previously with dancers to assess well- and ill-being and has been shown to possess adequate reliability and validity (Quested and Duda 2010, 2009).

Procedure

Following institutional ethics approval, university level vocational dance students were emailed at the beginning of semester 1, 2017 (i.e., February) and invited to voluntarily participate in the study. Interested students could access the questionnaire via a link provided in the email. After providing informed consent, participants were invited to create a unique identification code consisting of their month and year of birth, initial of their mother's maiden name, and number of siblings. The online questionnaire was hosted by Qualtrics (Qualtrics, Provo, UT) and remained open for five weeks. Students were sent two additional reminder emails to prompt them to complete the questionnaire.

Data analyses

Data were screened for errors and analysed using SPSS (IBM SPSS Statistics for Windows, version 24, 2016). Descriptive statistics (frequencies, means, standard deviations) were calculated for all variables. Internal consistencies of the MAAS, RESTQ-Sport, and PANAS were verified using Cronbach's alpha coefficient. Within the RESTQ-Sport, the subscale somatic complaints was found to have poor reliability (Cronbach's $\alpha = .017$) and was subsequently removed from further analysis within the general stress scale. The subscales success (Cronbach's $\alpha = .013$) and somatic relaxation (Cronbach's $\alpha = .123$) were also found to have poor reliability and were therefore removed from further analysis within the general recovery subscale. The general stress and general recovery subscales were calculated from the mean scores of the remaining subscales. The MAAS (Cronbach's $\alpha = .892$), positive affect (Cronbach's $\alpha = .859$), and negative affect (Cronbach's $\alpha = .892$) were found to have adequate

reliability. Correlation coefficients were calculated to test the hypotheses that that a significant positive correlation would exist between mindfulness and recovery, and mindfulness and positive affect; and conversely that a significant negative correlation would exist between mindfulness and stress, and mindfulness and negative affect.

To test the hypothesis that individuals reporting higher levels of mindfulness would report significantly higher levels of recovery and positive affect, and lower levels of stress and negative affect, when compared with individuals reporting low levels of mindfulness, multivariate analysis of variance (MANOVA) were conducted to determine group differences through regression coefficients (β). Participants were separated into low, moderate, and high mindfulness groups by post-hoc median split. Follow up univariate analyses of variance (ANOVAs) were conducted in cases where there was a significant MANOVA effect.

A one-way between-groups MANOVA was conducted to determine the effects of mindfulness on stress, recovery, and wellbeing. The Independent Variable (IV) of mindfulness categories was developed by performing a post-hoc tertile split on the data and assigning participants to low, moderate, or high groups in relation to their mindfulness score. Six Dependent Variables (DVs) were used positive affect, negative affect, general stress, general recovery, dance-specific stress, and dance-specific recovery.

Preliminary assumption checking was conducted to check for normality, linearity, univariable and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with some violations noted. There were no multivariate outliers, as assessed by Mahalanobis distance ($p > .001$). However, univariate outliers were observed for the low group on general stress, general recovery, dance stress, dance recovery; for the high group on positive affect, negative affect, and dance recovery; and for the moderate group on all DVs. Inspection of

the mean 5% trimmed values and mean values did not reveal large differences so all outliers were retained for the analyses. The assumption of equality of variance-covariance matrices was not met, therefore Pillai's Trace was used as a more robust test of significance in the MANOVA. The assumption of homogeneity of variances was met for all scales except for general stress and general recovery, therefore a stricter alpha level for significance was used ($p < .01$). Games-Howell post-hoc tests were conducted for follow up analyses on statistically significant findings as there were unequal numbers in the mindfulness groups.

Results

Participant characteristics

The final sample consisted of 72 participants, 67 female (97%) and five male (7%), with a mean age of 18.7 years ($SD = 1.66$), and age range of 16.4 – 27.5 years. Participant demographic information is presented in Table 1. Of the sample, 58 participants (80.6%) reported currently participating in mindfulness activities (e.g., meditation, yoga, Feldenkrais), with 13 participants (18.1%) reporting no current mindfulness practice.

Insert table 1 here

Correlation analyses

Correlation coefficients were calculated for the study variables and are presented in Table 2. The results supported the hypotheses that there would be a significant negative correlation found between mindfulness and both general stress and dance-specific stress, and between mindfulness and negative affect. The hypothesis that there would be a significant positive correlation between mindfulness and positive affect, and mindfulness and recovery was partially

supported, with all scales except for the general recovery scale demonstrating significant positive correlations.

Insert Table 2 here

Multivariate analysis of variance

MANOVA revealed differences between the mindfulness groups on the combined dependent variables were statistically significant, $F(12, 130) = 2.809$, $p < .01$; Pillai's Trace = 4.12; partial $\eta^2 = .206$. Follow up univariate ANOVAs showed that general stress ($F(2,69) = 15.043$, $p < .001$; partial $\eta^2 = .304$), negative affect ($F(2,69) = 10.589$, $p < .001$; partial $\eta^2 = .235$), and dance-specific recovery ($F(2,69) = 5.877$, $p < .008$; partial $\eta^2 = .146$) were statistically significantly different between the low, moderate, and high mindfulness groups, using a Bonferroni adjusted α level of .008. Results of the post-hoc tests for significant univariate effects for low, moderate, and high mindfulness groups are presented in Table 3.

Insert Table 3 here

For general stress, Games-Howell post-hoc tests showed that the low mindfulness group had statistically significantly higher mean scores than participants from either the moderate ($p < .05$) or high ($p < .01$) mindfulness groups, and the moderate mindfulness group had statistically significantly higher mean scores than participants from the high group ($p < .05$). For negative affect, there was no difference between moderate and high mindfulness groups mean scores ($p = .271$), however participants in the low mindfulness group had statistically significantly higher mean scores than participants in either the moderate ($p < .05$) or high ($p < .01$) mindfulness groups.

For dance-specific recovery, Games-Howell post-hoc tests showed that the low mindfulness group had statistically significantly lower mean scores than the moderate ($p < .05$) and high ($p < .05$) mindfulness groups. These results provide partial support for the hypothesis that individuals reporting high levels of mindfulness would report significantly higher levels of recovery and positive affect, and lower levels of stress and negative affect, when compared with individuals reporting low levels of mindfulness.

Discussion

It is important for dancers to be able to achieve recovery-stress balance for optimal performance and wellbeing (Blevins et al. 2019). The aim of this study was to investigate the relationships between mindfulness, stress, recovery, and wellbeing among university level vocational dance students. In particular, the present study investigated if dance students demonstrating higher levels of mindfulness reported significantly higher levels of recovery and positive affect, and lower levels of stress and negative affect than those demonstrating lower dispositional mindfulness. Overall, the findings showed significant relationships between mindfulness, stress, recovery, and wellbeing, and revealed significant differences in stress, recovery, and wellbeing related to level of mindfulness.

A negative relationship between mindfulness, stress, and negative affect was observed in the university dance students. This finding is congruent with previous research showing an association between mindfulness and stress reduction (Baer 2003, Grossman et al. 2004, Noetel et al. 2017), and mindfulness and negative affect (Bajaj and Pande 2016, Brown and Ryan 2003, Gustafsson et al. 2015, Schutte and Malouff 2011). The negative relationship between mindfulness, stress, and negative affect indicates that dancers with higher dispositional mindfulness reported lower stress scores (both general life stress and dance-specific stress) and

lower negative affect (less mood disturbance) than those with lower dispositional mindfulness. Thus, individuals who demonstrate greater dispositional mindfulness may be better able to cope with stress and experience greater wellbeing. This finding lends support to the notion that improving mindfulness may promote reduced stress and greater psychological wellbeing among pre-professional dance students. Future research would benefit from examining the impact of mindfulness interventions in increasing levels of mindfulness in dancers, and the subsequent impact this has on perceived stress and emotion during vocational dance training.

The findings partially supported the hypothesis that there would be a significant positive relationship between mindfulness, recovery, and positive affect, with significant relationships found for mindfulness, dance-specific recovery, and positive affect only. This finding supports previous research showing a relationship between mindfulness and positive affect (Bajaj and Pande 2016, Brown and Ryan 2003, Schutte and Malouff 2011). Dancers who are more mindful may experience greater dance-specific recovery because they are better able to attend to and cope with the stress experienced during dance training. They may also experience greater psychological wellbeing (evidenced through self-reported positive affect), however, due to the correlational nature of the data, causation cannot be attributed. Further research is warranted to establish the mechanisms underlying the positive effects of mindfulness on recovery and wellbeing.

The finding that dancers who reported greater dispositional mindfulness also reported greater recovery than dancers with lower dispositional mindfulness supports literature that indicates a relationship between mindfulness and recovery (Gustafsson, DeFreese, and Madigan 2017, Kellmann, Pelka, and Beckmann 2018). Therefore, increasing mindfulness in dancers may

have positive benefits for achieving recovery-stress balance and provide protection against maladaptive training outcomes such as overtraining syndrome and burnout.

The non-significant relationship between mindfulness and general recovery may have been observed for several reasons. Two subscales (success and somatic relaxation) were removed from the general recovery scale for analysis due to low reliability. It would be beneficial to investigate this further to establish if the dancers misunderstood the questions on these subscales, or if there is a more appropriate way of tapping into this construct in dance. Further research is additionally recommended with a larger sample size to test the applicability of the RESTQ-Sport within dance-specific environments, which may assist in improving reliability and validity of the measure with this population.

Levels of mindfulness

The second aim of the present study was to examine if differences in levels of mindfulness affected dancers' self-reported stress, recovery, and wellbeing. The finding of significant differences between low, moderate, and high mindfulness groups on general stress indicated a difference between the three levels of mindfulness in terms of experiences of stress. This finding corroborates previous research in a general university-level academic environment, where lower mindfulness was related to increased stress (Palmer and Rodger 2009). Improvements in levels of mindfulness for dance students may help to provide a protective buffer for students coping with a vast array of general and dance-specific demands in their lives.

Significant differences were found on negative affect between low and high mindfulness groups. However, no differences were observed between moderate and high mindfulness groups, suggesting that there was little difference between moderate and high levels of mindfulness for negative affect. Similarly, significant differences were found between low and high mindfulness

groups on dance-specific recovery, however, not between moderate and high mindfulness groups, suggesting that there was little difference between moderate and high levels of mindfulness for dance-specific recovery. Taken together, the findings indicate that low mindfulness may present risk for negative affect and dance-specific recovery. Therefore, even a small change in dispositional mindfulness may lead to improvements in negative affect and dance-specific recovery. Improving mindfulness may therefore be beneficial to dance students when trying to improve their recovery from demands of dance training.

Implications

Elite dance training environments, in both university and vocational settings, are demanding and dance students are required to cope with high physical and psychological demands while striving for optimal performance. Dancers' abilities to cope with, and recover from, stress is imperative to improving performance and maintaining wellbeing. The findings of the present study suggest that mindfulness may be an important factor in an individual's ability to cope with stress and facilitate adequate recovery from dance training demands, alongside improving wellbeing. Approaches that encourage and incorporate mindfulness into dance training may therefore be important to investigate further. An important element of mindfulness is the ability to pay attention with curiosity and without judgement (Harris, 2009). Therefore, dance educators could assist students in developing a more mindful approach by encouraging curiosity around movement patterns and experiences within dance training, as opposed to more judgmental critiques of what is 'good/bad' or 'right/wrong'.

The significant negative relationship between mindfulness and stress supports previous literature on stress and mindfulness in university populations showing that mindfulness can assist in reducing stress among university students (Brown and Ryan 2003, Palmer and Rodger 2009,

Shapiro, Schwartz, and Bonner 1998), and collegiate athletes (Kaiseler et al. 2017, Petterson and Olson 2017). The evidence indicates that mindfulness interventions conducted with collegiate athletes have positive benefits for athlete wellbeing and performance enhancement (Baltzell and Akhtar 2014, Petterson and Olson 2017, Vidic, St. Martin, and Oxhandler 2017). Given the similarities between training demands and general life stressors for collegiate athletes and pre-professional dancers training in university-level dance programs, the investigation of mindfulness interventions within dance training is warranted. Interventions could include integrated psychoeducational and movement-based approaches to mindfulness training, allowing dancers to learn about mindfulness principles and also to practice the application of mindfulness skills to their work in the studio or on stage. Additionally, a smart phone application (App) could be used as an intervention tool to provide an accessible way for dancers to engage with mindfulness practice, while minimizing the impact on training load. Research has demonstrated promising findings using this approach in Australian Rules Football (Mitchell and Hassad, 2016) and a recent study by Harrison and colleagues (2021) investigating the use of a wellness monitoring App for professional ballet dancers, which provides further support for the potential benefits of using Apps to enhance dancer wellbeing.

There are several limitations to the present study that can be addressed by future research. The correlational nature of the present study is a limitation. Future research would benefit from utilising a longitudinal approach to assess changes in stress, recovery, affect, and mindfulness over time. Alternatively, an experimental approach could be used to assess if a mindfulness intervention has a positive impact on dance students' experiences of stress and recovery. These approaches would be useful to establish if training in mindfulness can improve dance students' psychological wellbeing and recovery-stress state.

The present study was also limited by a small sample and narrow focus in terms of participant recruitment (particularly in relation to the high proportion of first year students and the small number of dance institutions). It would be beneficial to examine the relationships under investigation in the present study with a wider population of dancers (e.g., professional dancers, different dance training programs, dance genres, countries) to establish if the findings reported here are replicable across difference groups of dancers. Further research could also focus on performance outcomes to assess if mindfulness training has a direct impact on performance in dance. Research related to mindfulness practice and performance enhancement is limited, and calls have been made for more rigorous research into mindfulness and performance in sport (e.g., Bühlmayer et al. 2017). This recommendation appears equally valid for elite dance training and performance.

Conclusion

Pre-professional dancers face high levels of physical and psychosocial demands while undertaking dance training, therefore finding ways to cope with these demands is important for performance enhancement and wellbeing. The findings of the present study indicated that mindfulness is associated with stress and wellbeing among pre-professional dance students. Specifically, dance students with greater dispositional mindfulness may experience less stress and greater wellbeing than their less mindful counterparts. As a means to support pre-professional dancers during their training, our findings suggest that even small increases in mindfulness may provide a buffer against stress experienced during training and may assist in managing stress and promoting recovery and wellbeing in pre-professional dance students. The integration of psychoeducational and movement-based mindfulness approaches within dance

training could provide fertile ground for development of mindfulness skills in pre-professional dancers.

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Tables

Table 1

Participant characteristics based on year in dance program and primary dance genre studied

Characteristic	<i>n</i>	%
Total	72	100
Year in dance program		
First year	47	65.3
Second year	6	8.3
Third year	18	25.0
Fourth year	1	1.4
Primary dance genre		
Classical ballet	31	43.1
Contemporary	26	36.1
Classical ballet & contemporary	13	18.1
Other	2	2.8

Table 2
Correlation matrix for measures of mindfulness, stress, recovery, and wellbeing

	1	2	3	4	5	6	7
1. Mindfulness	1.00	-.58**	.19	-.42**	.34**	.33**	-.56**
2. General stress		1.00	-.36**	.61**	-.55**	-.55**	.60**
3. General recovery			1.00	-.29*	.31**	.36**	-.40**
4. Dance-specific stress				1.00	-.31**	-.33**	.37**
5. Dance-specific recovery					1.00	.63**	-.43**
6. Positive affect						1.00	-.36**
7. Negative affect							1.00
<i>M</i>	3.71	2.29	4.10	2.28	3.68	39.96	22.24
<i>SD</i>	.68	.81	.67	.76	.73	5.07	7.13

Note. * $p < .05$. ** $p < .01$.

Table 3
Significant univariate effects for low (1), moderate (2), and high (3) mindfulness groups

MAAS Category	Mean (SD)	Group comparison	p
Negative affect			
1	26.89 (7.58)	2	.012*
2	20.99 (6.26)	3	.271
3	18.54 (4.60)	1	.000**
General stress			
1	2.85 (.84)	2	.010*
2	2.23 (.52)	3	.022*
3	1.73 (.68)	1	.000**
Dance-specific recovery			
1	3.31 (.69)	2	.030*
2	3.78 (.58)	3	.613
3	3.98 (.79)	1	.012*

Note. MAAS = Mindful Attention Awareness Scale (Brown & Ryan, 2003) * p < .05. ** p < .01.