THE RELATIONSHIP BETWEEN BODY IMAGE DIMENSIONS AND TRAINING EXTENSITY AMONG SPORT DANCERS

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(Original scientific paper)

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Abstract

Body image and self perception are important issues among sport dancers that effect planning of dance training. Training extensity is one of the well known factors that influences success in dance competitions. The research was conducted in order to establish the relations between factors of Multidimensional Body Image Questionnaire and training extensity. The experiment comprised of 173 female sport dancers and 200 male sport dancers from 53 countries and six continents. The sample of variables included a body image estimate with latent dimensions obtained in previous research by Miletic (2012): attractiveness, joy, body efficacy, flexibility, energy, strength, bad health/weakness and masculinity/femininity; and variables for estimation of training extensity. According to the results obtained by discriminate analysis calculated separately by gender, the interrelations of factors of Multidimensional Body Image Questionnaire were defined among subsamples defined by training extensity with domination of flexibility and energy factors.

Key words: Standard and Latin dancers, gender differences, questionnaire

Introduction

Dancing is a competitive and artistic form of human activity that uses body as an instrument to express movement. By stemming to perfection in his performance, a professional dancer is always trying to give his maximum by pushing body limits. Sport dance is a competitive discipline - a blend of art, sport and fun. Competitions are held in ten different dance styles that fall under two categories: 1) Latin (samba, rumba, cha cha cha, paso doble and jive) and 2) standard (slow waltz, viennese waltz, tango, slowfox and quickstep).

Self-concept, self-image, self-esteem or body image are synonymous terms in scientific research that denote the individual's perception of self. Byrne (according to Marsh and Shavelson, 1985) has defined four different theories in the structure of the perception of self: 1) it is a one-dimensional construct; 2) it is a hierarchical multi-factor space; 3) it is comprised of multiple mutually independent factors; 4) it is a compensatory model with correlations between items of a factor, but those correlations are inverted (for example, academic achievement does not depend on the body image). Cash and Pruzinsky (1990) according to Cashmore (2008) have defined body image as an internal, subjective representation of physical appearance based on bodily experience, and the way the body image is developed is also a culturally influenced process. Seeing that body image depends on expectations, standards and the ideal image that the person created about their own appearance, it is very important to determine and develop the system of assessing the body image in professional dancers, whose standards will surely be different from those of the average athlete. According to Ambrosi-Radnić (2003) the body image includes: perceptions and attitudes about the subject's body, the placement of the body in space, physical boundaries, physical competence and bodily aspects connected to age. Therefore, determining the system of measures for dancers exclusively enables a wholesome insight into factors of success, respecting all the specifics of dance as a competitive sport. The researches on body image in dancers are extremely rare and very significant. It is common knowledge that dancers are extremely critical towards their physical appearance, which is connected to eating disorders (Anshel, 2004; Ravaldi et al, 2006). For example, in ballet, there is a prevailing opinion that the lower body weight will contribute to elegance, grace, aesthetics and better performance and expressiveness on the stage: Ballerinas live in an environment which encourages them to aspire to be thinner all the time (Ravaldi et al, 2006). This results in the risk of losing identity as a dancer and resorting to unhealthy methods of losing body weight. That kind of problems in sport dancers could be
identified by body image adjusted to dancing population and this research has a practical significance when it comes to preservation of their health.

The research was conducted separately by gender and it enables us to see the details and differences in male and female dance identities, which has an important social effect, apart from the practical one that concerns dancing. Sport dance is a discipline performed by couples, therefore the perception of self should be approached separately by gender, with respect to training, technical, anthropological, psychological and sociological traits of sport dancers.

Construction of the questionnaire for assessing the body image in dancers (Miletić, 2012) solves an important problem of insight into details and differences of male and female dance identities but the correlation between dimensions identified by the questionnaire and training and kinesiological characteristics still remains to be determined.

The aim of this research is to determine the structure and correlation of body image dimensions in sport dancers to training extensity, determined by gender.

Methods

Participants

The sample in this study consisted of active Sport dance couples, international competitors in Latin (samba, rumba, cha-cha-cha, Paso doble and jive) and Standard (English waltz, tango, Viennese waltz, slow fox and quickstep) dances.

The total sample of subjects included 373 dancers: 173 female and 200 male dancers. Mean body height for female dancers was 165.7 ± 6.49, mean body weight was 53.7 ± 6.84 and mean BMI 19.5 ± 1.9. Mean body height for male dancers was 177.8 ± 7.73, mean body weight 69.1 ± 10.1 and mean BMI 21.8 ± 2.5. Mean age for female dancers was 24 years (range from 15 to 38) and mean age for male dancers was 25 years (range from 15 to 40). Female and male dancers that participated in this research were from 53 different countries.

The total sample was divided into five subsamples according to the training extensity criterion; the extensity was determined by average number of training hours during one week as follows: 1) one to five hours of training per week; 2) six to ten hours of training per week; 3) eleven to fifteen hours of training per week; 4) sixteen to twenty hours of training per week and 5) twenty one and more hours of training per week.

Variable sample

Body image questionnaire (BIQ) was used as a referent base for creating a questionnaire for body image assessment (Bruchon-Schweitzer, 1987; modified by Milavic, 1986). The original scale of BIQ (Appendix 1.) included 19 items that defined four dimensions of self-image: 1) extroversion/introversion; 2) content/discontent; 3) activity/passivity and 4) relaxation/tension. Every item had five degrees of assessment and the questionnaire included binary elements (adjectives and descriptions).

A new questionnaire for body image assessment was created and used in the later study (Milavic, Miletic, Miletic, 2012) on kinesiology students, whose aim was to investigate the metric value of self image questionnaire, which could be applicable on the sample of dancers.

According to the results in the pilot research, the final questionnaire was formed to collect the sample data of sport dancers. The detailed questionnaire was translated into seven language and it is in the author's possession. Eight factors with the total proportion of explained variance of 87.67% were isolated: first (attractiveness), second (joy), third (body efficacy), fourth (flexibility), fifth (energy), sixth (strength), seventh (bad health/weakness) and eight (masculinity/femininity). There was a relatively high internal consistency of latent dimensions in previous researches and metric characteristics of sensibility and homogeneity proved to be satisfactory.

Data collection

The data was collected during the period from June 1, 2011 to January 1, 2012. The Sport dance competitors were encouraged to participate in this research by their federations and the World dance associations. The purpose of the research and its practical and scientific significance were presented to national dance federations. Through self-perception and personal experience, dancers were asked to reply truthfully to questions in the survey.
Both “paper-pen” and on-line methods were used in order to collect the data. The survey was translated in eight different languages, and participants provided the data by: writing answers, inserting numerical values into designated fields and choosing one of the answers already provided. An on-line questionnaire was posted on a specialized server for the electronic collection and analysis of the data on a global scale (https://www.surveymonkey.com/MyAccount_Login.aspx).

The server and the application's security level included an access password and automatic identification of the subjects' computer while filling out the questionnaire, defined by its IP address and personal information.

Collection of the data using surveys on professional coaches and athletes is nowadays used more and more often in scientific researches (Van Rossum et al. 1994., 1996., Feltz and Lirrg. 1998., Yeung et al., 2001., Magyar et al., 2004., Sadowski, J., 2005.). The increased frequency of scientific data collection is a result of the evolution of on-line systems. That kind of approach allows researchers to form the information base about elite athletes that was not possible before the computer infrastructure development.

Methods of data analysis

Discriminant analyses were calculated by gender in order to determine the structure of body image dimensions and correlation with the training extensity. A factor analysis with oblimin rotation, that was previously used in researches (Milavic, Miletic and Miletic, 2012; Miletic 2012), was performed (in accordance to Gutman-Kaiser criterion) in order to determine factorial structure of the instrument for body image evaluation. Descriptive statistic analysis was used to determine the sensitivity of individual latent dimensions. Intercorrelation matrix and Cronbach’s alpha were used to determine the reliability of individual latent dimensions. The homogeneity of individual latent dimensions was tested by analysing latent structures of manifested items of the scale using principal components factor analysis with Varimax rotation.

Results

A discriminant canonical analysis was performed in order to differentiate between groups of male and female dancers according to their training extensity, with regard to the dimensions of body image assessment test in latent space.

According to Miletić (2012), good metric characteristics for the body image assessment on the sample of sport dancers, both female and male, were determined. By factorization of 36-variable matrix and oblimin rotation, according to the Gutman-Kaiser criterion, eight factors with the total proportion of 87.67% of explained variance were isolated: first (attractiveness), second (joy), third (body efficacy), fourth (flexibility), fifth (energy), sixth (strength), seventh (bad health/weakness) and eight (masculinity/femininity). Those latent dimensions were applied to this research.

The same research confirmed the existing difference between male and female sport dance competitors when it comes to perception of self in following dimensions: attractiveness, flexibility and masculinity/femininity. The resulting differences showed that female dancers scored higher on the attractiveness and flexibility scales, while male dancers scored higher on the masculinity/femininity scale.

### Table 1. Discriminante analysis of female dancers’ body image on training extensity

<table>
<thead>
<tr>
<th>DF</th>
<th>λ</th>
<th>Re</th>
<th>Wilks' lambda</th>
<th>χ²</th>
<th>SS</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.14</td>
<td>0.36</td>
<td>0.78</td>
<td>40.20</td>
<td>32.00</td>
<td>0.15</td>
</tr>
<tr>
<td>2</td>
<td>0.06</td>
<td>0.25</td>
<td>0.90</td>
<td>17.81</td>
<td>21.00</td>
<td>0.66</td>
</tr>
<tr>
<td>3</td>
<td>0.03</td>
<td>0.17</td>
<td>0.96</td>
<td>7.39</td>
<td>12.00</td>
<td>0.83</td>
</tr>
<tr>
<td>4</td>
<td>0.01</td>
<td>0.12</td>
<td>0.99</td>
<td>2.25</td>
<td>5.00</td>
<td>0.81</td>
</tr>
</tbody>
</table>

### Table 2. Discriminante analysis of male dancers’ body image on training extensity

<table>
<thead>
<tr>
<th>DF</th>
<th>λ</th>
<th>Re</th>
<th>Wilks' lambda</th>
<th>χ²</th>
<th>SS</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.14</td>
<td>0.36</td>
<td>0.78</td>
<td>47.78</td>
<td>32.00</td>
<td>0.04</td>
</tr>
<tr>
<td>2</td>
<td>0.07</td>
<td>0.25</td>
<td>0.89</td>
<td>21.72</td>
<td>21.00</td>
<td>0.42</td>
</tr>
<tr>
<td>3</td>
<td>0.04</td>
<td>0.19</td>
<td>0.95</td>
<td>9.27</td>
<td>12.00</td>
<td>0.68</td>
</tr>
<tr>
<td>4</td>
<td>0.01</td>
<td>0.11</td>
<td>0.99</td>
<td>2.50</td>
<td>5.00</td>
<td>0.78</td>
</tr>
</tbody>
</table>
Discriminant function with Wilks lambda of .78 was not significant (p<.05) in female dancers (Table 1.), and the structure matrix was not interpreted, as well as group centroids (Tables 3. and 4., for the female dancers data).

Discriminant function proved to be significant (p<.04) in male dancers (Table 2.) with Wilks lambda of .78 and a canonical correlation of .36.

Table 3 shows that the factor structure of this discriminant function is predominantly defines by energy (-.61) and flexibility (-.55). The group centroids on discriminant function (Table 4.) show that that kind of latent dimension refers to dancers who train up to than 15 hours per week. The second group includes dancers who train more than 15 hours per week, and the third group, which trains more than 21 hours per week has the highest centroid values. We can conclude that this group is separated the most effectively by the discriminant function.

**Discussion**

From a psychological and motivational standpoint, there is a need to define body image in dance practice, leading to the problem of defining a good and practical instrument for the assessment of body image in sport dance competitors. This research uses a confirmed questionnaire to resolve a problem of details and differences of the male and female dance identities. The importance of research of body image in male dancers has to be emphasized, since the authors usually studied the female dance identity by analyzing the perception of self. Sport dance is a discipline performed by couples and the issues of the perception of self have to be approached individually and separately by gender, with respect to training, technical, anthropological, psychological and sociological gender differences in sport dance competitors. From a psychological and motivational standpoint when interpreting given results, it is important to emphasize the socio-cognitive problem of the achievement motivation. Formation of goals in sport dance competitors remains unresearched, but it is presumed that the high level of intrinsic motivation, which includes high effectiveness during training, is important to achieve an expressive performance, and consequent success in competitions.

According to the results of this research, dancers who have a good perception of their flexibility and energy, have a lower training extensity. These results were unexpected because those dancers with the higher training extensity should have a better perception of their well-being and physical abilities. Further
research is required in order to determine a correlation between exact external indicators of training extensity and training experience and age in dancers to interpret these results.

Conclusion
According to the training extensity criterion in female dancers, there are no significant differences between groups with different weekly training load that would define the body image dimensions. In male dancers, however, the structure of factors in discriminant function with regard to training extensity is predominantly defined by energy and flexibility. Dancers with better perception of flexibility and energy had a lower training extensity. These results were unexpected because those dancers with higher training extensity should also have a better perception of their physical abilities. Further research is required in order to determine a correlation between exact external indicators of training extensity and training experience and age in dancers to interpret these results.

References

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