

Shall we dance? An exploration of the perceived benefits of dancing on well-being

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(Received 3 June 2009; final version received 5 November 2009)

Past research has suggested positive influences of musical experiences on people's health and well-being. Empirical work has focused on musical activities such as listening and singing, while neglecting the potential effects of dancing. In the present study, 475 non-professional adult dancers completed an online survey, which sought to evaluate the participants' perceived benefits of dancing. Quantitative and qualitative analysis revealed that dancing has potential positive benefits on well-being in several aspects. In particular, beneficial effects were found related to the emotional dimension, as well as physical, social and spiritual dimensions. In addition, the positive benefits were also linked to self-esteem and coping strategies. This exploratory study constitutes a starting point in understanding the impact of amateur dancing on well-being and offers arguments for including dance on the agenda of health promotion. Directions for future research are also discussed.

Keywords: dancing; well-being; affect; health benefits

In recent years, the recognition that health is not only the absence of illness, but also a state of complete physical, mental and social well-being (WHO, 1946) has led to an increasing interest in the roles of the arts, in general, and music, in particular, as a potential means to improve individual well-being and health (e.g. Edwards, 2007).

Influences of music on well-being have been investigated particularly in contexts such as music listening (e.g. Laukka, 2006; Sloboda & O'Neill, 2001) and singing (e.g. Clift, Hancox, Staricoff, & Whitmore, 2008; Clift et al., 2010; Grape, Sandgren, Hansson, Ericson, & Theorell, 2003; Kreutz, Bongard, Rohrmann, Hodapp, & Grebe, 2004). Clift and Hancox (2001), for instance, reported that the perceived benefits of choral singing could be represented within six dimensions. These dimensions included benefits for well-being and relaxation, benefits for breathing and posture, social benefits, spiritual benefits, emotional benefits and benefits for heart and immune system. To date, it remains largely unexplored how other forms of musical involvement, such as dancing, might influence self-reports related to perceived health and well-being.

Dance is a worldwide human activity that integrates the coordination of intentional body movements, performed in synchronisation with rhythmical stimuli, usually together

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with other individuals. Since early human history, healing potential effects have been attributed to dance activities (e.g. Hanna, 2006; Ritter & Low, 1996). However, an interest in the systematic evaluation of the therapeutic impact of dancing in clinical populations is relatively recent. For instance, positive effects of dancing as a therapy have been reported in patients with Parkinson's disease (Hackney, Kantorovich, & Earhart, 2007), neurotrauma (Berrol, Lock, & Katz, 1997), depression (Jeong, Hong, Soo, Park, Kim, & Suh, 2005), arthritis (Noreau, Moffet, Drolet, & Parent, 1997), cancer (Ho, 2006), fibromyalgia (Bojner-Horwitz, Theorell, & Anderberg, 2003), and cardiac insufficiency (Belardinelli, Lacalaprice, Ventrella, Volpe, & Faccenda, 2008). On the other hand, empirical research evaluating the extent to which dance activities may contribute to increased well-being in healthy individuals appears to be more limited. Leste and Rust (1990), for example, examined the changes in anxiety in college students participating in dance classes during a period of three months, and compared them with the effects of participating in a music group, a physical education group and a mathematics group. The authors found significant reductions in anxiety only in the dance group.

In modern Western societies dancing as well as other forms of musical behaviours appears primarily to be a minority activity. People have been reducing their active engagement with music, through singing or dancing, while limiting their musical enjoyment to the role of passive consumers (e.g. Bailey & Davidson, 2005). According to Storr (1992), the solitary music listener is a modern phenomenon resulting from the progress in technology which has enabled access to enjoyment of music in complete isolation. It is a matter of fact that modern technology has changed human life, reducing people's needs to move. Leisure time is increasingly given over to passive and individual activities such as watching TV, surfing the internet and listening to music (French, Story, & Jeffery, 2001; Vairo et al., 2003).

Perhaps amateur dancing could be seen as a medium for increasing leisure-time physical and social activity. A great body of literature reveals the importance of engaging in regular physical exercise for the prevention of several chronic diseases as well as for improving psychological well-being and overall quality of life (e.g. Haskell et al., 2007; Warburton, Nicol, & Bredin, 2006). Notwithstanding the growing evidence that physical fitness contributes to health, inactivity appears to remain a public health issue (WHO, 2010). Dancing may offer an attractive means to promote physical activity, since it appears to combine body movements with the aesthetical and emotional rewards of music. Music appears to uplift our subjective emotional state while stimulating body movements to synchronise to the temporal structure of the perceived rhythms (e.g. Berrol, 1992; Large, 2000). In addition, since dancing is mostly executed in a social context, music facilitates the coordination and regulation of movements in time with other individuals. According to McNeill (1995), keeping in time together has been a fundamental mechanism for strengthening social bonds between individuals and thus an effective way to create and sustain communities.

However, at present there appears to be few empirical data to support these assumptions. Recent empirical research has concentrated on identifying the general motivations and preferences for dancing. For instance, Nieminen (1998) conducted a study in Finland to explore motivations to engage in different dance forms, such as folk, ballroom, ballet and modern dance. The author found four categories of participation motivation: self-expression, social contacts, fitness, achievement and performing. In a recent study with tango dancers, Kreutz (2008) found that tango dancing was reported to be a primary leisure activity, involving an opportunity for physical exercise, social interaction and emotional reward.

The present exploratory study aims to identify the areas of perceived benefits of dancing for the well-being of a non-professional dance population, using similar research instruments that have been applied successfully in the context of singing (Clift & Hancox, 2001). Further, we attempt to capture evidence about how dancing is perceived to influence both positive and negative affect as well as prevalent body complaints in the participants.

Method

Participants

A total of 475 (304 females, 171 males) non-professional dancers, with dance experience spread across several genres, participated in the present study. Participants' age ranged from 18 to 74 years (females: $M = 38$ years, $SD = 12$; males: $M = 45$ years, $SD = 12$). The difference of mean ages between both males and females was significant ($t(473) = 5.49$, $p < .001$). Among the participants, 64% were Germans, 20% were Austrians, and 6% were Swiss. The rest of the participants (10%) were from other nationalities, but with sufficient skills with the German language to fill out the questionnaire.

Concerning marital status, 36% of participants were single, while 36% were married and 14% reported being in a relationship. Approximately 13% were divorced, and a few participants were widowed (0.6%). Table 1 shows age, marital status and gender distribution of the sample.

Procedure

The data were collected by means of an online survey. The recruitment of participants was led through an invitation via email to dance teachers from two different cities in Germany. The email contained brief information about the nature and aim of the study and a link to the survey website. Participants were asked to completely fill in the online questionnaires and also to forward the link for the survey to their own circle of dance friends.

Questionnaires

At the beginning of the survey a brief description of the purpose of the study as well as some general instructions were given. The first part of the questionnaire requested demographic information about the dancer's gender, age and marital status. Further, participants were asked to give information on the kind of dances they had had experience

Table 1. Sociodemographic Characteristics of the Examined Dancers.

	Females	Males
N (%)	304 (64)	171 (36)
Age (years)		
range	18–74	18–72
M (SD)	38.32 (12.83)	45.04 (12.76)
Marital status (%)		
Single	35	38
In a relationship	16	8
married	33	43
divorcee/separated	15	11
widowed	1	0

of, the number of years of their dance experience as well as the estimated number of hours spent on dancing in the previous month.

A second part of the survey consisted of a 29-item scale evaluating the perceived benefits of dancing. This scale comprised the 24 items developed by Clift and Hancox (2001), who assessed the benefits of singing in members of a choral society, adjusted to a dance population. In addition, five new items were formulated by the first author of this study and included in the scale, in order to evaluate the perceived physical benefits of dancing, since they were not contained in the choir survey. A five-point scale (from *strongly agree* to *strongly disagree*) was employed to score the items.

A next set of items explored the subjective emotional states of participants after dancing. The question was posed as follows: "How do you usually feel after dancing, in comparison to days when you do not dance?" Participants were asked to use a five-point Likert scale to rate 20 adjectives on the Positive and Negative Affect Scale (Krohne, Egloff, Kohlmann, & Tausch, 1996; Watson, Clark, & Tellegan, 1988). This scale consists of 10 items related to positive affect and 10 items associated with negative affect. Response categories included: *much more*, *more*, *no difference*, *less*, *much less*. From the participants' responses, highly satisfactory internal consistencies for Positive Affect (Cronbach's $\alpha = .88$) and Negative Affect (Cronbach's $\alpha = .93$) were found.

A fourth section addressed self-reported chronic bodily pain, assessed by means of two questions. The first explored if participants suffered from physical complaints and, if yes, in which part of the body. The second question evaluated on a five-point Likert scale, from *a lot less* (1) to *much stronger* (5), how strong their complaints in the referred body parts appear to be on the days after dancing in comparison to non-dancing days.

Finally, the following open question completed the survey: "According to your experience, how has dancing influenced your well-being?" The completion of the online questionnaire took approximately 25 minutes.

Statistical analysis

Data were analysed using SPSS 15.0. The items of the Perceived Benefits of Dancing questionnaire were analysed by principal components analysis, followed by varimax rotation. Cronbach alpha coefficients for all components were calculated. Gender and age differences in the responses to the factors were assessed by means of one-way analysis of variance (ANOVA).

Responses to the open question evaluating the subjective influence of dancing on well-being were analysed using Atlas.it, which is a qualitative data analysis software package. In particular, the emergent themes contained in participants' comments were systematised and ordered into categories and sub-categories, and the frequencies calculated.

Frequency distributions were used to analyse the responses to the PANAS. Again, gender and age differences in responses to the items were calculated with one-way analysis of variance (ANOVA). Levels of significance for all analyses were set to $p \leq .05$.

Results

Dance Experience and Dance Involvement

Participants reported experiences in a broad range of dance genres. While 24% stated having experienced only in one dance form, the majority of 76% appear to have practiced more than one dance genre. Table 2 presents the reported dance forms, including the corresponding percentage of participants having experience in each of them. It can be seen

Table 2. Dance Forms and the Corresponding Percentage Frequency Distribution of Participants.

Dance form	% of dancers*
Folk dance	64
Standard	45
Disco	35
Salsa	20
Modern dance	18
Jazz	15
Tango argentino	15
Swing	14
Ballet	10
Tap dance	4
Rock 'n' Roll	4
Hip Hop	3
Historical dance	3
Belly dance	2
Meditative dance	2
Afro dance	1
Flamenco	1
Dance theatre	1

Note: *Participants were able to report experience in more than one dance form if this was the case.

that folk dance was the most practised dance form, followed by ballroom dance and disco. The average number of hours in the last month dedicated to dance was 17.6 ($SD = 13.5$) and the average number of years attending dance lessons was 10.2 ($SD = 9.1$).

Perceived Benefits of Dancing

The frequency distributions of responses to the statements of the Perceived Benefits of Dancing are presented in Table 3. The statements are ordered according to the percentage of "strongly agree". As shown, the highest level of strong agreement corresponds to the statement "Dancing improves my balance and bodily awareness" (71%), while the lowest level of strong agreement was found to the statement "Dancing gives me a strong feeling of the spiritual dimension of life" (16%).

In order to address the pattern of relationships among the items, a principal component analysis was conducted. Four components with Eigen values greater than one, accounting for 49.3% of the total explained variance, were extracted and rotated to the Varimax criterion. These were readily interpretable and are presented in Table 4. A strong first factor accounted for 32.6% of the variance, while the proportions of variance explained by the other factors were 5.9%, 5.5%, and 5.3%, respectively. Factor One had loadings from eight items and was labelled "Emotional benefits"; Factor Two had loadings from seven items and was labelled "Well-being and meaningfulness"; Factor Three had loadings from four items and was labelled "Creativity benefits"; and Factor Four had loadings from four items and was labelled "Physical benefits".

Six items were excluded from the scale as a result of their lack of accuracy, or because they either failed to load highly on one of the four factors or they loaded on more than one. The internal consistencies within the four factors, calculated by means of Cronbach's alpha, were satisfactory: emotional benefits ($\alpha = .86$), well-being and meaningfulness ($\alpha = .76$), creativity benefits ($\alpha = .70$) and physical benefits ($\alpha = .69$).

Table 3. Percentage Frequency Distribution of Responses to the Scale of Perceived Benefits of Dancing. Rank Ordered by Strongly Agree Responses.

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
Improve balance and body awareness	71	24	4	1	0
Improve mood	64	30	4	2	1
Feel highly pleased	60	33	5	2	0
Look forward to	60	32	6	2	0
Important for my mind	60	29	8	2	1
Improve mental well-being	60	29	5	3	4
Feel elated	57	36	6	2	0
Reduce tension	55	36	6	2	1
Feel happier	55	36	8	1	0
Keep fit	55	36	5	3	1
Stimulate body health	54	31	8	4	3
Improve attitude towards life	54	34	9	2	1
Important component in my life	53	27	9	7	4
Increase well-being and health	51	37	10	3	0
Get all enthusiastic	48	34	11	6	2
Feel energetic and alert	47	31	14	6	3
Reduce negative feelings	43	45	8	3	1
Reduce negative thoughts	38	37	12	8	4
A very meaningful enjoyment	37	39	11	10	3
Help to express feelings	32	32	22	13	1
Weightlessness feelings	24	35	24	13	4
Increase artistic self image	24	28	24	14	10
Feel spirituality uplifted	16	24	31	16	13

Multivariate analysis of variance on the factors of the Perceived Benefits of Dancing scale was conducted to make comparisons between gender (females vs. males) and age (young: 18–30 years vs. middle aged: 31–50 years vs. older people: 51–75 years). Significant main effects for both gender, $F(4, 466) = 8.55, p < .001$; and age, $F(8, 934) = 3.41, p < .01$, were found. The interaction between gender and age was not significant, $F(8, 934) = 1.22, ns$. Post-hoc analysis demonstrated that women were more likely than men to report benefits in all dimensions: emotional benefits, $t(473) = 4.06, p < .001$, benefits for well-being and meaningfulness $t(473) = 4.70, p < .001$, creativity benefits $t(473) = 2.81, p < .01$ and physical benefits $t(473) = 3.97, p < .001$. On the other hand, old people (51–75 years) and middle-aged people (31–50 years) were more likely to report physical benefits than young people (18–30 years), $t(246) = 2.41, p < .05$, and $t(359) = 2.25, p < .05$, respectively.

Finally, positive significant correlations were found between dance involvement (number of hours in a month spent in dancing) and the perceived benefits of dancing: emotional benefits ($r = 0.19, p < 0.001$), well-being and meaningfulness ($r = 0.22, p < 0.001$), creativity benefits ($r = 0.16, p < 0.001$), physical benefits ($r = 0.23, p < 0.001$).

Open Question

A qualitative analysis was conducted to the comments given to the item: “According to your experience, how do you believe dancing has influenced your well-being?” The main issues emerging from this analysis were identified and are presented in the Table 5.

Table 4. Rotated Component Matrix of the Perceived Benefits of Dancing Scale ($n = 475$).

	Emotional benefits	Well-being and meaningfulness	Creativity benefits	Physical benefits
	VE = 32.6	VE = 5.9	VE = 5.5	VE = 5.3
Feel highly pleased	.74			
Improve mood	.72			
Reduce tension	.67			
Reduce negative feelings	.66			
Feel happier	.58			
Look forward to	.53			
Improve attitude towards life	.49			
Feel elated	.46			
Feel energetic and alert		.65		
Important component in my life		.59		
Reduce negative thoughts		.57		
Improve mental well-being		.57		
A very meaningful enjoyment		.50		
Get all enthusiastic		.49		
Important for my mind		.48		
Feel spirituality uplifted			.71	
Help to express feelings			.68	
Weightlessness feelings			.67	
Increase artistic self image			.63	
Keep fit				.75
Increase well-being and health				.65
Stimulate body health				.56
Improve balance and body awareness				.53

Note: VE = variance explained (percentage); loadings smaller than .4 are omitted. Extraction method: Principal Component Analysis. Rotation method: Varimax with Kaiser normalisation.

A total of six categories of benefits were found, which were labelled as follows: emotional benefits, physical benefits, self-esteem, social benefits, coping strategy, and spiritual benefits.

The participants' comments to the open question not only support the issues included in the structured questionnaire of Perceived Benefits of Dancing, but also extend the themes regarding each dimension. For example, it was found that the improvement of the emotional state was not only related to the current time of dancing, but can start hours or days before (with the idea of going out for dancing), as well as lasting for some hours or days thereafter. Finally, dancing was reported to be a mean of emotional expression, as one participant stated:

Dancing helps me express my feelings and my true character. Dancing is like a language that comes to me more easily than spoken words and that allows me to communicate with like-minded people whom I meet while dancing; thus dancing helps me to come into contact with others, to be my true to myself, and to present myself the way I am. (Woman, 28 years)

With regard to Physical benefits, by far the most common response was that dancing helps to keep in shape. Participants also revealed that dancing seems to improve body posture, as well as body coordination, flexibility and balance. Further, themes related to improvement of health were indicated. Besides arguing that dancing helps to reduce pain, it was also stated that dancing helps with physical impairments:

I suffer from chronic diseases, which do not cause any direct pain, but which impair and put a strain on me. I have the feeling that dancing helps me deal with them in a different, more

Table 5. Perceived Benefits of Dancing Identified through Content Analysis.

Dimensions	<i>n</i>
<i>Emotional benefits</i>	
Makes me feel happy/elated/pleased/proud/inspired/euphoric/in trance	138
Helps me to feel released/relaxed/refresh/calm/more balanced	42
Makes me feel energetic/alert/animated/active/strong/vigorous	36
Express own emotions	26
Reduces negative feelings	10
Feel very positive over several hours/ days/weeks	6
I am looking forward already days/weeks before a dance event	6
Awakes erotic feelings	3
<i>Physical benefits</i>	
Helps to keep in shape	55
Increases bodily control/awareness	46
Improves body posture	14
Reduces pain	12
Helps with physical impairments	11
Improves body coordination/flexibility/balance	10
Helps to release body tensions	8
Stimulates circulation/blood flow	6
<i>Self-esteem</i>	
Improves self-confidence/self-consciousness/security	43
Helps to be in harmony with oneself	25
Makes me receptive/eager to learn/creative/highly productive/concentrated	23
Makes me more attractive/radiant/youthful/smiling	19
Makes me more tolerant/open/indulgent/sensitive	5
<i>Social benefits</i>	
Gives me a great feeling of togetherness/affiliation	62
An opportunity to meet my friends/foster personal contacts/know more people	44
Intensifies communication/relations become closer	25
Stimulates sympathy for other people/cultures/strengthens my knowlegdge of human nature	8
<i>Coping strategy</i>	
Helps to relax/rest the mind	41
Helps me to forget worries/problems/negative thoughts	37
Helps me to get rid of everyday hassle/to get away from the everyday	33
Helps to cope with stress/to overcome difficult times	8
<i>Spiritual benefits</i>	
Makes me feel spiritual love/nourishment for the soul	13
Coalesces me into a transcendental unit/brings me into another world	3
Lets me feel close to God	2

relaxed way and that it also helps me accept my health impairment as part of who I am. (Woman, 29 years)

I suffered from strong osteoporosis. My doctor has attested that without regular dancing, I wouldn't be able to walk anymore. (Woman, 73 years)

Dancing improves my physical well-being. In times of intense dancing, I suffered less from illnesses such as colds, etc. (Man, 41 years)

New domains emerging from the participants' self-reported benefits of dancing were identified. One of these dimensions was labelled as Self-esteem and included five sub-categories. The dominating response was that dancing improves self-confidence and self-consciousness, followed by the notion that dancing helps to be in harmony with oneself.

Next in frequency concerned the effects of dancing on cognitive abilities, such as creativity and concentration. In addition, some participants stated that after dancing they felt more attractive, radiant and younger. Finally, it was also declared that dancing makes one more tolerant, open and sensitive. These points are illustrated in the following excerpts:

Dancing automatically provides me with more strength in all areas of life, I feel my independence and autonomy as well as creativity and security and a strong vitality, love and gratefulness for all being. I can accept myself better with all my strengths and weaknesses and can be fond of myself without reserve, without much judgment. (Woman, 25)

Through dancing I feel “more complete”, more self-confident in my whole existence. Today, I feel beautiful, attractive as a woman with a female body. I experienced through dancing, the possibilities and qualities lay within me ... Overall, I would say that nowadays I am much younger than five years ago. (Woman, 48)

A further domain labelled as Social benefits included assertions concerning the positive effects of dancing as an activity that facilitates getting together with friends and meeting new acquaintances. Such contact elicits feelings of affiliation, helps to improve communication with others, and serves to promote a better understanding of different cultures:

The social interaction satisfies my needs for group togetherness, closeness and body contact. Even though verbal communication fades into the background during dance, we can cultivate friendships within the dancing community, which, to me, are very positive and important. Therefore, dancing supports social life. (Man, 53 years)

By dancing with other people I get a feeling of belonging, of being an important part of the whole, even without losing my individuality. A feeling second only to flying. (Woman, 32 years)

Through dancing with many different, sometimes international, dance partners, I am provided with a unique means of communication, which would never be possible with spoken language alone. If a language barrier exists (e.g. with Russian dancers), a sense of understanding is reached through communication on a physical level. In my opinion, this also contributes to international relations. (Woman, 30 years)

In addition, new themes presenting dancing as an activity to cope with stressful situations appeared through participants' comments. Participants reported that dancing helps them to relax, and to forget worries and problems. Dancing was seen as a strategy to forget daily stress as well as to cope with the stress of prolonged difficult times:

Worries which I suffered over years due to my daughter's life-threatening illness took a back seat while dancing. Dancing gave and still gives me much energy for daily routines again and again as well as on my path through life. (Woman, 46 years)

I often felt tense and stressed out throughout the week. However, the anticipation of the dance lesson or of dancing in general relieved a part of this tension. The pressure became more bearable. This effect was even more noticeable while dancing. Everything faded away and was forgotten. In those moments, I could focus on myself, without having the daily stresses in the background. My weariness melted away and I suddenly had new energy that lasted throughout the following days. Dancing helped me very much during the phase of exam preparation. (Man, 46 years)

Finally, a new domain concerning spiritual benefits was identified, which included themes such as dancing makes one feel spiritual love; dancing brings one into a transcendental world; and it lets one feel close to God. To illustrate this point, one participant commented:

Body, mind and spirit merge into an almost transcendent unity, which, if permitted, opens a door to paradise through which incomparably beautiful moments of happiness are bestowed upon us. Dancing gives us wings and allows us to float above the abyss of our imperfect existence, which up until that point seemed insurmountable. Dancing gets me in contact with the divine principle in and around us and it truly provides freedom. (Man, 48 years)

Positive and Negative Affect

Frequency distributions of responses to the PANAS are presented in Figure 1. To the question “How do you usually feel after dancing, in comparison to days when you do not dance?”, it was found that over a 70% of participants reported feeling more active, enthusiastic, inspired, excited, alert and attentive; as well as less irritable, distressed, nervous and upset.

Multivariate analysis of variance on the factors of the Positive and Negative Affect Schedule was computed to determine difference between gender (females vs. males) and age (young: 18–30 years vs. Middle-aged: 31–50 years vs. older people: 51–75 years). A significant main effect for gender, $F(2, 468) = 6.45, p < .01$, was found. The effect for age and the interaction between gender and age were not significant ($F(4, 938) = 0.43, ns$, and $F(4, 938) = 0.77, ns$, respectively). Post-hoc analysis demonstrated that women in contrast to men reported a significantly greater improvement of positive affect, $t(473) = 3.63, p < 0.001$, after dancing. In relation to the specific items, women reported to feel more inspired, alert, determined, proud, active, attentive, strong and enthusiastic than men (all $t(473) > 2.02, p < .05$). With regard to negative affect, the only gender difference was found related to one item. Females reported feeling much less nervous, $t(473) = 2.85, p < 0.01$, than males after dancing.

Self-reported Chronic Bodily Pain

Within the sample, 131 participants (39 males, 92 females) reported suffering chronic pain in at least one site of the body. The lower back was the body part that achieved most complaints (34%), followed by the shoulders (31%) and legs (27%). Twenty-two percent of the participants reported bodily pain in the upper back, while 19% indicated to suffer

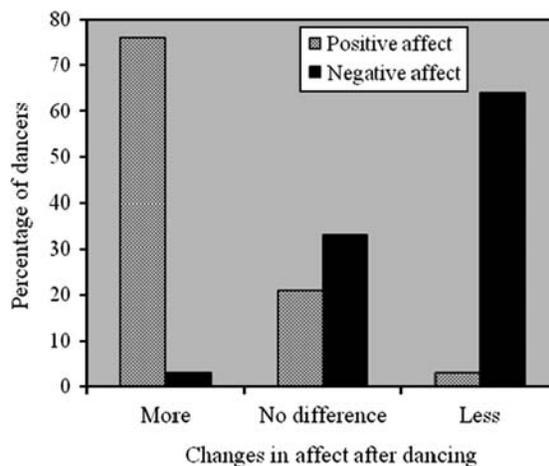


Figure 1. Positive and Negative Affect in a Day of Dancing, in Comparison to a Non-dancing Day.

from headaches and 18% reported to suffer from a sore throat. Pain in the feet was indicated by 14%, while 11% in the hands and arms, and 8% referred to pain in the pelvis.

To the item "How strong are your complaints in these areas after dancing in comparison to days when you do not dance?", 61% of the respondents reported that their complaints were lessened, 18% did not find any difference, while 19% reported that their complaints were stronger.

Discussion

The findings of the present exploratory study revealed that dancing is perceived to be a multidimensional activity that contributes positively to several aspects of human well-being. In particular, the correlations among items of the Perceived Benefits of Dancing questionnaire suggested four meaningful dimensions, each of them with good or satisfactory internal consistency. The dimensions were identified as "emotional benefits", "well-being and meaningfulness", "creativity benefits" and "physical benefits". In addition, the content analysis of the open question evidenced further complementary domains of well-being. Thus besides emotional and physical benefits, participants reported dancing to have positive influences on self-esteem, social relations and spirituality as well as providing a significant coping strategy for daily stress and difficult times.

The outcomes reported here support the view that dancing is widely perceived as having a meaningful influence on mood. Most of the participants strongly agreed that dancing contributes positively to their emotional well-being. This result was further confirmed through the analysis of the PANAS, which revealed a high level of agreement that dancing leads to increases in positive affect as well as decreases in negative affect. Further, our findings are consistent with previous empirical evidence that has showed positive changes in affect after dancing using the same scale (e.g. Quiroga, Bongard, & Kreutz, 2009; West, Otte, Geher, Johnson, & Mohr, 2004). Recent studies have begun to identify favourable effects of positive affect states on several health-related biological markers, such as in neuroendocrine, inflammatory and cardiovascular processes (e.g. Steptoe, Wardle, & Marmot, 2005). Dancing as an activity eliciting improvement in affective states may have a potentially important influence on physiological health parameters. For instance, in a recent study, it was found that tango dancing led to positive changes in emotional states and to significant reductions of salivary cortisol concentrations (Quiroga et al., 2009). More research is needed to investigate the associations between positive affective changes and further biological correlates elicited by dance activities.

Similarly, dancing was perceived to positively contribute to the physical well-being of the participants. A growing body of research has shown that physical activity is an important component for a healthy lifestyle and that body fitness increases quality of life (e.g. Haskell et al., 2007). Therefore, promoting physical activities, like dancing, may be a strong mean for preventing diseases and a cost-effective method to improve public health across the population. Several physical qualities were reported as being promoted by dancing, such as flexibility, strength, balance, coordination and speed. Interestingly, in the scale of perceived benefits, older people were found to perceive more physical benefits than younger people. One possible explanation is that dancing may constitute an alternative means for older people to engage in physical activity, with lower risks of suffering a bodily injury, as well as with lower demands of extreme energy and vigour generally associated with sports activity.

Dancing also appeared to help in reducing body pain as well as in dealing with and accepting physical impairments. These results are in line with increasing evidence that

dancing may serve as an alternative treatment to improve physical function in people suffering mobility impairments, such as Parkinson's disease (Hackney et al., 2007) and arthritis (Noreau et al., 1997). However, more empirical research with highly controlled designs is needed to investigate the value of dancing as a therapeutic intervention for physically disabling conditions (Ritter & Low, 1996).

Several themes emerging from participants comments evidenced the positive impact of dance activities on self-esteem. This finding is in line with Hanna's (1995) assumption that dancing contributes to positive self-perception, body image and esteem, since it may give an individual a sense of self-mastery through being in charge of the body and its actions, physical health, and appearance. Self-esteem has been considered an important predictor of well-being. Numerous studies have found that physical activity may produce positive changes in self-esteem (Fox, 2000). To date, empirical studies reporting associations between dancing and self-esteem have not been found.

Further comments confirmed the value of dancing for socialisation. This finding supports the assumption that dancing is a profoundly important social experience (Kraus, Chapman & Dixon, 1991). Dancing was perceived to facilitate sympathy and understanding towards other people and cultures as well as to elicit strong feelings of togetherness and affiliation. Since the need to belong to a social group is a fundamental human motivation (Baumeister & Leary, 1995), dancing can be seen as serving to enhance one's chances of inclusion in groups and relationships and thus balancing our social needs, which are often forgotten amidst the dominant technological lifestyle. Further, there is a substantial body of evidence indicating the relationship between positive social relationships and individual health outcomes (e.g. Berkman, 1995).

Dancing was finally perceived to play an important role as a strategy to cope with the daily stress as well as on-going difficult situations. This issue has also been evidenced in studies evaluating the benefits of active musical participation in choir singing (Clift et al., 2010). According to Fredrickson (2000), such activities that cultivate positive emotions help to optimise health and well-being, by broadening habitual modes of thinking and building individual resources for coping with adversity.

Gender differences emerged in relation to the perceived benefits of dance activities. Overall, it was found that women reported more positive benefits in all dimensions than men. This tendency has also been found in singing contexts (Clift et al., 2010; Clift & Hancox, 2001). Additionally, it was proved that the degree of perceived benefits of dance activities was found to be related to the intensity of dance involvement (number of hours a month dedicated to dancing), so that individuals spending more time in dance activities were more likely to report greater positive benefits in the different dimensions. However, no significant correlations were found between the perceived emotional state after a dancing day (measured with the PANAS) and the intensity of dance involvement, which indicates that people dedicating less time to dance are able to experience a high improvement in their subjective affect after dancing.

Limitations of the present study should be noted. First, participants were those who have dancing as a hobby. The personal interest placed on dance could have encouraged them to ascribe benefits to dancing. In addition, given that participants in our study were recruited via mailing lists, our study cannot ensure randomness and representativeness of the sample. This lack of sample accuracy does not allow us to generalise our results. Moreover, since only the participants' subjective well-being was considered in this study, questions arise of whether measures of objective health parameters may reflect the reported potential benefits of dancing. Therefore, this study should be considered as preliminary and results have to be confirmed in further empirical studies. The potential

benefits of dancing identified in our study should be thoroughly explored using experimental designs in order to determine the issue of causation between dancing and the several self-reported dimensions of well-being. Objective health parameters should be also included in the measures as dependent variables. In addition, longitudinal studies should be addressed to determine the extent to which benefits of dancing can be seen over time. Finally, experimental designs are needed to empirically compare the perceived benefits of dancing with those of other musical activities, such as playing music and singing, as well as with those of other physical activities.

In conclusion, dancing is perceived as an enjoyable experience that promotes emotional, physical and social well-being. Moreover, our results revealed that dancing appears to be a means to cope with stress, as well as to improve self-esteem. If dancing is considered to have positive influences on several dimensions of human life, more should be done to make dancing a more integrated and accessible activity in our leisure time. We hope that this study will stimulate future research that contributes to a greater, more in-depth understanding of the role and perceived power of dancing to benefit the well-being of individuals.

Acknowledgements

This article was part of the research conducted for a doctoral thesis at the Goethe University Frankfurt am Main. The first author expresses her gratitude to the DAAD (German Academic Exchange Service) for supporting her research stay in Germany.

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