

Tango Therapy: Current Status and the Next Perspective

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Submitted: 29 Sep 2018; Accepted: 05 Oct 2018; Published: 20 Oct 2018

Abstract

Dance is basically a complex physical activity which either casually or formally organized in which people take part for fitness, health and well-being, social relationships or competition and a worldwide human activity that involves complex whole body movements through space synchronized to music. Dance-related reviews of evidence have examined the effectiveness of dance therapy on psychological and physical health and well-being outcomes in patients with cancer, for schizophrenia, and on depression. Dance therapy was officially described firstly in 1948. The medical application of dance therapy was well reviewed in neurologic conditions. Dance has been used extensively for the treatment of gait and balance dysfunction in individuals with Parkinson's disease. Especially, Argentine tango is the most frequently employed dance form in the treatment of Parkinson's disease. Tango therapy may hold promise as an intervention to improve gait, balance, and mobility in a variety of neurological conditions. Tango therapy was approached from dance therapy to the current status of medical application. A more systemic analysis of tango movement for proper and effective therapeutic application of tango is necessary for medical purposes.

Introduction

The aim of this study was to systematically review the literature in order to describe how Argentine tango is being used and investigated in adults with neurologic conditions to improved gait and balance. Tango therapy was approached from dance therapy to the current status of medical application. A more systemic analysis of tango movement for proper and effective therapeutic application of tango is necessary for medical purposes.

Dance

Dance is basically a complex physical activity. Sometimes, dance is approached as a type of sport, as a dance sport. The established definition of a sport refers to forms of physical activity either casually or formally organized in which people take part for fitness, health and well-being, social relationships or competition [1]. Dance has similar characteristics to sports in these points which is also organized casually or formally, takes part for fitness, health, well-being, social relationships and/or competition. A sport includes a wide range of individual and group activities including jogging, running, cycling, martial arts, yoga, team games and athletics. Both, sport and dance interventions are similar to each other by promoting subjective well-being in healthy people [2]. Overall, the published evidence suggests that meditative physical activity (examples included here were yoga and Baduanjin Qigong) also has the potential to improve subjective well-being in terms of reduced anxiety, depression and anger, and enhanced positive mood in young people. However, dance goes together with music differently from sports. So, dance is commonly defined differently from sports as a performing art form which refers to the rhythmic movements and sequences of steps usually set to music [3]. Dance has additional positive effects as compared to sports because of music and artistic characteristics.

Dance: from general to medical effects

Dance is a worldwide human activity that involves complex whole body movements through space synchronized to music [4]. Dance involves the culturally mediated body, emotion, and mind [5]. Dance may promote wellness by strengthening the immune system through muscular action and physiological processes. Dance conditions an individual to moderate, eliminate, or avoid tension, chronic fatigue, and other disabling conditions that result from the effects of stress. Dance may help the healing process as a person gains a sense of control through possession by the spirit in dance, mastery of movement, escape or diversion from stress and pain through a change in emotion, states of consciousness, and/or physical capability, and confronting stressors to work through ways of handling their effects.

Subjective well-being describes well-being in term of the good and bad feelings arising from what people do and how they think [6]. Good feelings include happiness, joy, contentment and excitement while sadness, worry, stress, and anxiety are examples of more negative feelings [2]. People's experience also involves a sense of purpose (eg. worthwhileness, meaningfulness) and pointlessness (eg, futility, boredom). Subjective well-being is measured with parameters presented as satisfaction with life, worthwhileness, happiness, and anxiety [7]. The term of subjective well-being is used synonymously with a wide range of concepts including self-esteem, self-efficacy, self-determination, resilience, quality of life, mood enhancement and happiness [8].

Dance-related reviews of evidence have examined the effectiveness of dance therapy on psychological and physical health and well-being outcomes in patients with cancer, for schizophrenia, and on depression [9-11]. A review of reviews on physical activity and

mental health in children and adolescents identified an association between physical activity and positive wellbeing outcomes connected to reduced depression and anxiety, and enhanced self-esteem and cognitive function [12].

Basically, dance was found to enhance happiness, relaxation, playfulness, fun, social connectedness, aspiration, ambition and reduce isolation [13]. Well-being outcome was measured by mood, fatigue scores and levels of depression of dance activities [14,15]. Dance exercise to music (aerobics) was reported to significantly improve self-reported positive well-being and reduce distress and fatigue at the end of the intervention [15]. Significant improvements on the self-reported Beck Depression Scale in participants not diagnosed with depression were reported from a dance training intervention compared with controls [14]. Positive well-being associations from dance interventions in terms of increased confidence, sense of purpose and fun and exhilaration were applied [13,16]. Dance can lead to positive well-being outcomes in terms of mood enhancement and self-reported reductions in feelings of depression in some youth populations [2].

Dance can instill positive well-being feelings such as exhilaration and sense of purpose, and increased confidence, self-esteem and feelings of belonging and purpose. The findings support work that has associated physical activity with positive outcomes connected to depression, anxiety, self-esteem and cognitive function in children and adolescents [12,17,18]. On these backgrounds, dance was applied as therapy, 'dance therapy'.

Dance therapy

Dance therapy was officially described firstly in 1948 [19]. The medical effects of dance in health and healing were scientifically reported in 1995 [5]. The medical application of dance therapy was well reviewed in neurologic conditions [20]. Walking, balance and mobility are almost invariably affected by the neurological conditions such as stroke, multiple sclerosis, spinal cord injury, traumatic brain injury, Huntington's disease and Parkinson's disease [20,21]. Gait and balance impairments have a profound impact on an individual's ability to perform activities of daily living and consequently, quality of life [22,23]. Clearly, new therapeutic approaches and interventions for balance, mobility, and gait are needed and dance instruction as therapy is a promising intervention that may address this need [20].

Older adults who regularly dance have a more stable gait pattern, better balance and faster reaction times than older adults who do not dance [24,25]. Dance also has the same aerobic benefits as jogging and walking programs [26]. Adults who dance recreationally describe it as an enjoyable experience and perceive a number of benefits such as emotional, social well-being and stress reduction [4]. Interest in the use of dance as a therapeutic tool to address both psychological and physical impairments is increasing with one Cochrane review reporting positive effects on quality of life and fatigue in people with cancer [27]. Especially, dance has been used extensively for the treatment of gait and balance dysfunction in individuals with Parkinson's disease [28-30]. Tango is the most frequently employed dance form in the treatment of Parkinson's disease [29]. However, evidence suggests that other dance forms including non-partnered dance are just as effective [29,31]. Dance as therapy has multiple benefits including improvements in balance, gait, and motor impairment in Parkinson's disease (PD) [29]. Furthermore, improvements made with dance as therapy may be

greater than gains made with traditional exercise therapy or in some circumstances, conventional physiotherapy [32,33]. A recent systematic review and meta-analysis also confirmed balance and gait outcomes in favor of dance interventions for PD over control groups or other interventions [29]. Dance may hold promise as an intervention to improve gait, balance, and mobility in a variety of neurological conditions including stroke, multiple sclerosis, spinal cord injury, and Huntington's disease [20]. Dance therapy has been applied according to the FITT Principle.

FITT Principle for Dance Therapy

Principles for dance therapy have consisted of frequency, intensity, type, time/duration (FITT). Frequency was defined as the number of classes delivered per week. The median frequency of dance classes was two times per week [20]. The intensity of the dance intervention was described as 'moderate'. Intensity was measured at the individual level with the Borg Rating of Perceived Exertion scale. Type was the applied type of dance. Many kinds of dance such as jazz, merengue, tango, rumba, salsa, Ballet are reported for dance therapy [34-37]. For the therapeutic application of dance, dance therapy, free and guided dance movement, and dance movement were used as terms [38-40]. Time/duration was described as both the length of the dance class and the length of the intervention period [20]. Range of each dance class ranged from 45 to 120 minutes, and the median dance class duration was 90 minutes [36,20]. The length of intervention period ranged from 4 weeks to 5 months, and the median length of dance intervention period was 8 weeks [35,41].

Dance intervention feasibility

Some studies reported on participants that dropped out [34,35,37,39,41,42]. The number of participants not completing a dance intervention ranged from 2 to 7 participants, representing 20-44% of the original number of participants in the study group [35]. Reasons for discontinuation of the dance intervention included discharge from hospital before the program ended, not liking the program, and illness [20]. Reasons for missed dance classes included illness, vacation and scheduling conflicts. Adverse events, defined as falls and events requiring medical attention, of which there were none.

Effect of dance on outcomes of interest

The outcomes of interest by dance therapy are balance, gait and functional mobility [20]. Balance was measured using several scales such as Berg Balance Scale [34,35,37,42]. Tinetti Mobility Test [40,41]. Four-square step test [41]. Functional Reach Test [34]. Gait is evaluated by spatiotemporal gait parameters [34,37,41]. Dynamic Gait Index, Walking Scale and a timed 25-foot walk test [37,42]. Functional mobility was tested by Timed up a Go test [34,37,38,42]. Six-minute walk test, Six-minute wheeled distance, and Minimal Record of Disability (MRD) [26,34,39].

Argentine Tango

Argentine tango is a popular couple dance which originated in Rio de la Plata, Argentina, in the mid-19th century [43]. Lötze et al. described that several styles exist and tango is mostly danced in either open or close embrace with long elegant steps and complex figures often with a bad reputation as sensual connotation as many general people who are not experts and do not have much experience in Argentine tango. They also described that dancers, men (tanguero) and women (tanguera), wear specific clothes and shoes, are perfumed and very elegant.

The corresponding author of this article is a medical doctor who is a pediatric doctor and a specialist in the fields of allergy and clinical immunology. The authors have danced Argentine tango, taught and done tango performance several times for more than 15 years. Argentine tango is very liberal. The clothes for dance are liberal except for formal performances or shows. But the tango shoes for the proper sliding are recommended but the dances can be done with running shoes in any place. Most of all, tango is just walking along with tango music. Of course, as an expert in Argentine tango, it shows its own characteristics of Argentine tango as compared to other dance, showing long elegant steps and complex figures as described above by other authors.

Tango Therapy

Argentine tango therapy was reported officially in the medical research fields in 2008 for the first time, by studying effects of a community-based Argentine tango dance program on functional balance and confidence in older adults [44]. Dancing itself has physical benefits including improving aerobic power, lower body muscle endurance, strength and flexibility, balance, agility, and gait and improving older adults' lower body bone-mineral content and muscle power, as well as reduce the prevalence of falls and cardiovascular health risks [45]. The effects of Argentine tango on movement control in Parkinson's disease were compared with those of American ballroom dance [46]. Both dance groups improved more than the control group. The tango and waltz/foxtrot groups improved significantly on the Berg Balance Scale, 6-minute walk distance, and backward stride length. The tango group improved as much or more than those in the waltz/foxtrot group on several measures. Argentine tango may target deficits associated with Parkinson's disease more than waltz/foxtrot, but both dances may benefit balance and locomotion. In the study, patients attended 1-h class twice a week, completing 20 lessons in 13 weeks.

The effects of short duration, intensive tango lessons on functional mobility in people with Parkinson's disease were investigated [47]. In this study, participants complete 1.5-h Argentine tango dance lessons for 10 sessions within 2 weeks and showed significant improvement in balancing and walking. Also, the effects of partnered and non-partnered dance movement on gait and balance were compared in Parkinson's disease [48]. However, the non-partnered class improved as much as the partnered class, however, partnered participants expressed more enjoyment and interest in continuing. In the further study, tango therapy improved spatial cognition and disease severity, motor and non-motor manifestations as well as balancing and walking in Parkinson's disease. Tango therapy was proven to be feasible and safe through these studies in Parkinson's disease [47,49-51].

In addition to the functional and psychological factors identified so far, the aesthetic experience in tango therapy as well as dance therapy may be an important therapeutic factor mediating several outcomes of dance and other arts-based interventions [52].

As described above, tango therapy was applied in Parkinson's disease in the early period. Adapted tango was applied as therapeutic intervention for patients with chronic stroke [53]. In the report, 30 hours of adapted tango lessons improved balance, mobility, endurance, and dual-task ability in a participant with chronic stroke and the participant enjoyed the classes, was adherent, and wished to continue. Argentine tango was also applied therapeutically for treating depression and compared the effects by mindfulness

meditation and a waiting-list control [54]. Depression levels were significantly reduced in the tango and meditation groups, relative to waiting-list controls. Stress levels were significantly reduced only in the tango group. Mindfulness-meditation and tango dance could be effective complementary adjuncts for the treatment of depression and/or inclusion in stress management programs.

Perspectives

Emerging evidence for the use of dance in adults with neurologic conditions as well as Parkinson's disease has been reported [20]. However, for medical staff, especially physicians, they regard dance as the rhythmic movements and sequences of steps usually set to music [3]. So, in aspects of medical concept, dance therapy is a music therapy and exercise no matter how they see it. As a medical term, it is just cognitive therapy and behavioral therapy. Argentine tango was also applied therapeutically as has other dances. Movement and music is considered to be useful. Especially, movement was applied not over exercise because tango dancers do not have medical concept and physicians and medical staffs do not have profound knowledge on tango. However, the author is a clinical immunologist as a doctor and has long and much experience for Argentine tango. For the adequate application of Argentine tango as therapy to maximize the therapeutic effects, more systemic analyses in medical viewpoints and the deduction of the medical characteristics of Argentine tango are necessary.

Many kinds of dances have been applied for dance therapy including jazz, merengue, tango, rumba, salsa, and Ballet [34-37]. All dances have their unique characteristics and have their own unique usefulness. Gains in gait, balance, and functional mobility can be made with different forms of dance across different neurological conditions [20]. The type of dance varied across studies as did the frequency and duration of classes [29]. In the case of tango therapy, its unique characteristics should be applied properly adjusting to the purpose and the disability to be improved or recovered.

Argentine tango has several characteristic movements and should be also applied delicately for the purpose of tango therapy according to disease characteristics and disability. Until now, just tango or adjusted tango movement has been applied in diseases like Parkinson's disease by applying just movement as an extent of exercise therapy. However, the only difference between tango therapy and exercise therapy is that tango therapy is applied merely with tango music.

The current protocol for tango therapy which mainly depends on and is described by the FITT (Frequency, intensity, type of dance and time/duration) principle showed that it is applied nearly similar to the concept of exercise therapy [20]. Tango has many types of complicated movement. In tango therapy, the type of movement should be applied and described rather than the type of dance as a detail. For that, the elements of tango movement should be analyzed and applied properly for the therapeutic purpose. The tango specialist who has profound knowledge for tango with a long tango career with experience in tango instructing, tango performance with stage tango and, most of all, has a medical background is absolutely necessary for this purpose.

Argentine tango therapy has many favorable therapeutic characteristics. However, if it is tried inappropriately, the disease status can rather be seriously aggravated. The process of tango therapy also becomes systemized. The diagnosis should be made accurately. The purpose of tango therapy should be determined and therapeutic plan should be built according to the status of patient disease by discussion together

with the doctor and therapist. Also, within each neurological condition, there is likely a subgroup of patients that would benefit from dance [20]. The characteristics of these subgroups remain to be determined but likely include the capacity to walk/move and maintain balance with minimal assistance and follow multi-step instructions, as these were common abilities outlined in the inclusion and exclusion criteria [31, 32]. Finally, precise prescription according to the differential diagnosis of disease status should be made by a doctor to improve therapeutic effects and prevent side effects of tango therapy. The disease progress should be recorded and properly evaluated periodically during the tango therapy.

Participant tolerance as well as barriers to participation and adherence to dance interventions for individuals with neurological conditions is also important in tango therapy [20]. Classes for tango therapy should be designed for both feasible and engaging. Dancing classes can provide more than just therapeutic benefits [55]. Well-structured dance classes can promote social-connectedness and joy, in addition to facilitating movement to music and physical activity [56]. Consumers advised that careful planning of the classes and tailoring them to participant needs optimized outcomes.

In addition to participant tolerance, adverse events are the other important aspects to be scrutinized in tango therapy [20]. The side-effects or untoward results should be expected as much as possible. Fortunately according to the published reports until recently, dance may be feasible for adults with neurological conditions that affect gait and balance with no adverse events. Majority of studies did not describe adverse event reporting and a lack of reporting in these studies does not imply that no adverse events occurred. Intensity of the program was rarely reported when describing the dance intervention. Greater detail with respect to tracking of adverse events and reporting the intensity of the intervention should be made in the next study.

It is recognized that dance is more than just therapy in therapeutic dancing classes [55]. To get these effects, first of all, the precise analysis of the principle of tango movement in the view point of medical concept may be necessary.

Conclusion

Currently argentine tango therapy has physical benefits including improving aerobic power, lower body muscle endurance, strength and flexibility, balance, agility, and gait which subsequently improved significantly spatial cognition and disease severity, motor and non-motor manifestations, balancing and walking especially in Parkinson's disease. Tango therapy was proven to be feasible and safe through these studies in Parkinson's disease. However, Argentine tango has several characteristic movements and should be also applied delicately for the purpose of tango therapy according to disease characteristics and disability. The elements of tango movement should be analyzed and applied properly for the therapeutic purpose. Argentine tango is more than just therapy in therapeutic dancing classes and first of all, the precise analysis of the principle of tango movement in the view point of medical concept may be necessary.

Acknowledgement

I have thought my son (Chanyong Noh) and my lovely daughters, Yeonsoo Noh and Damseo Noh during writing this manuscript. First of all, I appreciate to my wife (Borte, Youngsoo Koh) as also the first author for her excellent efforts in finishing this work.

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