ARTICLE
Dance Movement Therapy: A Promising Lifestyle Intervention in the Management of Chronic Obstructive Pulmonary Disease

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ABSTRACT
Chronic Obstructive Pulmonary Disease (COPD), a progressive multi-component malady with high morbidity and mortality, is an important public health challenge, throughout the world. Despite remarkable progress in its diagnostic and therapeutic modalities, significant number of patients, especially the elderly, continue to suffer from distressing dyspnoea and harrowing extra-pulmonary manifestations limiting their daily activities, with resultant exercise intolerance. Dance Movement Therapy (DMT), a pleasurable and feasible exercise, has been found to be equally efficacious when compared to routinely prescribed physical exercises. Moreover, it has aesthetic expression, attractive to both genders irrespective of age, tempting to those with disabilities, and a fruitful tool in developing self-confidence. During the current stressful situation, caused by COVID-19 pandemic, the COPD patients, notably those over 70 years, are particularly vulnerable to intensification of symptoms and some of them may experience serious disorders of mental illness. Home isolation, social distancing, limiting outdoor activities and prohibiting participation in group exercises, though being appropriate prophylactic measures, are likely to add to already existing physical inactivity and heighten stress and depression, with deleterious effects on overall well-being. Solo dancing, while restricted to home, is a highly accessible, doable, sustainable and well rewarding alternative.

Keywords: Chronic obstructive pulmonary disease, Dance movement therapy, Lifestyle intervention, COVID-19 Pandemic, Integrative medicine

1. Introduction

COPD outstrips all the other comparators-heart failure, ischemic heart disease, diabetes and renal failure-as the cause of hospital admissions, “ Prof. Darcy Marciniuk Chair of the Canadian Thoracic Society's COPD Committee [1].

Chronic Obstructive Pulmonary Disease (COPD), a progressive degenerating lung condition “slowly robbing its sufferers of the ability to draw life-sustaining breath”, is a multi-component malady with pulmonary and extra-pulmonary manifestations. It is an important public health challenge, throughout the world.

The Canadian Thoracic Society defines it as “a respiratory disorder largely caused by smoking, and is characterized by progressive, partially reversible airway obstruction and lung hyper-inflation, systemic manifestations, and increasing frequency and severity of exacerbations” [2]. The Global Burden of Disease Study reports a prevalence of 251 million cases of COPD globally in 2016. The

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figure is continually rising, particularly in those aged 65 years and above. It has been estimated that 3.17 million deaths were caused by the disease in 2015, more than 90% of which were in low and middle-income countries. Currently, it is the 4th leading cause of death globally and is projected to be the 3rd, by 2030.

With the recognition of poor lifestyle as the major determinant of chronic diseases (notably COPD) and the “Physical activity: generic prescription for health” as one of the important component of lifestyle intervention, there is dire need to search for innovatives in the management of COPD.

2. Rationale

“There is still a huge gap between scientific knowledge and population-based interventions, although many ways to reduce or prevent the burden of COPD are identifiable”. Prof. Nicolino Ambrosino Respirologist.[5]

Despite remarkable progress in diagnostic and therapeutic modalities of COPD, significant number of patients continue to suffer from distressing dyspnoea and narrowing extra-pulmonary manifestations notably skeletal muscle weakness and osteoporosis limiting their daily activities, with resultant exercise intolerance. In a German prospective cohort study, Waschki et al demonstrated that physical activity of patients with COPD decreases across all severity stages and this decline is parallel by a worsening of lung function and health status. Conversely, Garcia-Aymerich et al, on the basis of a population based study in Copenhagen, have shown that COPD patients performing some level of regular physical activity had a lower risk of both hospitalization and mortality.[6]

The slogan “Exercise is Medicine” has its roots in antiquity. It is like medicine because it can be prescribed in a specific formulation, dosage, frequency and duration on an individualized basis. The concept is old but is gaining ground rapidly. Its roots can be traced to the teachings of Maharishi Susruta (flourit 1500 BCE). Garry Egger et al, while developing National Physical Activity Guidelines, suggested that “Think of movement as an opportunity, not an inconvenience”.[4] This approach is very realistic and would be highly rewarding, if adhered to in the management of all chronic diseases (notably COPD). Undoubtedly, exercise is a valuable component of pulmonary rehabilitation programs for those with COPD. However, the traditional exercise sessions yield sub-optimal response with resultant inadequate outcomes. Moreover, with an increase in exercise intensity, the resultant dynamic hyperinflation is the major contributor to dyspnea, limiting physical activity.

3. Dance Movement Therapy (DMT)

“The dance of medicine men, priest or shaman belongs to the oldest form of medicine and psychotherapy in which the common exaltation and release of tensions was able to change man’s physical and mental suffering into a new option on health. We may say that at the dawn of civilization dancing, religion, music and medicine were inseparable”. Joost AM Meerlo (1903-1976 CE)-Dutch Psychoanalyst Author.[9]

Medical Dance (dance for healing) has its roots in antiquity. The ancient Greeks were well aware of the link between physical and psychological states. The use of dance for healing and curative purposes has a long and venerable history. The modern concept of Dance Movement Therapy (DMT) dates back to the work of Carl Gustav Jung. (1875-1961), Swiss Psychoanalyst, who pioneered the abstraction of dance as psychotherapy, in 1916. Mary Starks Whitehouse (1911-1979), a professional dancer and then a teacher, worked further on the application of Jungian theory for healing various ailments. In 1942, Marian Chace (1896-1976), a dancer and teacher at the Denishawn School of Dancing and Related Arts in Los Angeles, was invited to work at St. Elizabeths Hospital in Washington, D.C. She was licensed the “First Full-time Dance Therapist” in 1947. In 1966, she rose to the position of Founding President of American Dance Therapy Association (ADTA). The concept gradually gained popularity at international level. At present, remarkable and well-rewarding work on its efficacy is in progress.

Dr. Lynn Berman Physical Therapist is quite right that the dance: an ideal exercise: a total body work is “a great way to access all movement planes and access some muscles that get ignored in typical day-to-day activities.”. But dancing has additional merits which have been enumerated by Dr. Shilagh Mirgain Psychologist University of Wisconsin- “It involves both a mental effort and social interaction. Regular dancing can help prevent cognitive decline as we age and is associated with a reduced risk of dementia”.

DMT has been defined, by ADTA, as the “psychotherapeutic use of movements to promote emotional, social, cognitive, and physical integration of the individual, for the purpose of improving health and well-being.”

Fong Yan et al, in a systematic review and meta-analysis, concluded that DMT is more efficacious than other forms of usually prescribed physical exercises. The “Let’s Boogie” Pilot Study, on the feasibility of dance intervention, revealed that DMT was an enjoyable, safe, and feasible way to exercise, for COPD patients. DMT could be an effective intervention for COPD associated
psychological stress. In a population based cross-sectional Singaporean study, there was significantly stronger association of life event stress with depressive symptoms among individuals with COPD than among those without [13]. It is known that around 40% of COPD patients are affected by severe depressive symptoms or clinical depression [14]. An interventional study was conducted in Finland to ratify the effects of adding DMT to usual treatment (TAU) for patients suffering from depression. One group received TAU alone while the other was on TAU plus DMT. The prognosis was found to be much better in the second group [15].

Whereas anxiety and depression are well recognized comorbidities in COPD patients [16], their rates may be much more in comparison to those suffering from other chronic diseases [17]. In a systematic review and meta-analysis, by Torres-Sanchez et al, cognitive impairment was found associated with the profile of COPD severity and its comorbidities [18]. The results of meta-analysis, by Koch et al., suggest that DMT, in addition to decreasing depression and anxiety, improves quality of life and cognitive skills [19].

Projects of dance therapy are gaining popularity at various forums. The beneficial effects of DMT, when tested in group form, have been very promising. In a multi-centered Randomised Controlled Trial (RCT), aimed at testing the efficacy of 10 week DMT group intervention in patients suffering from stress, significant improvement in QoL, in short term and long term follow up, was demonstrated [20].

In an interventional study for pulmonary rehabilitation, it was found that the group dance classes provide suitable training to physical fitness in COPD patients. The participants found themselves not only in good mood, but also there was distraction from dyspnea [21].

Wellcome Trust-funded interdisciplinary “Life of Breath Project” (2015-2020) is carrying out an integrative research program to explore the possibility of DMT as an ad-on therapy in pulmonary rehabilitation program. When designed for COPD, it is being used in a collaboration between King’s College London and choreographer Evangelia Kolyra.

All the participants rated it “extremely enjoyable and beneficial”. Dr. Victoria MacBean, the Academic Lead, remarked “I certainly believe that dance-based exercise has the potential to enhance clinical care in this population”. “Dancing Your Way to Better Breathing”, an interesting combination of therapy and fun, organized by Respiratory Therapist Joe Wynes, at the Sebastian Community Center Sebastian Florida, demonstrated the therapeutic effects of enjoyable dancing for COPD patients.

Undoubtedly, RCT is “Golden Standard” for ascertaining the efficacy of a newly introduced technique or claim. However, in an under-scored and insufficiently sponsored sub-speciality such as DMT, multi-centered RCTs requiring huge funding are not easy.

The Bezmialem Vakif University Istanbul Turkey has championed to initiate “The First Interventional (Clinical Trial) Study to Apply Dance-based Exercise Training in COPD” - with the goal to “to investigate the effect of creative dance based exercise training on respiratory, balance and cognitive functions, respiratory and peripheral muscle strength and functional capacity in COPD patients”. It started on September 1, 2019 and the estimated completion date is May 17, 2021. This would bridge a gap in international literature and the findings will, most hopefully, “provide important methodological and protocol data required for the fully powered RCT to evaluate efficacy and mechanisms of action of DMT”.

3.1 DMT for Elderly Patients

“With the diminishing of cognitive skills in elderly, it is important to enhance the level of embodiment. It is through body movement that the older adult can express feelings, and experience a sense of belonging, increased self-esteem, and personal growth”. Donna Newman-Bluestein - Panel Presenter ADTA 2017 [22].

COPD is strongly associated with aging. At least 10% of persons aged 65 years and above, in the United States, are diagnosed with COPD. Internationally, the figure may reach up to 16% depending on the country. However, the figure is still an underestimate because of underdiagnosis and underutilization of pulmonary function tests [23]. The over-age 65 population, according to WHO estimates, was 703 million in 2019 and, with consistent growth, is likely to double to 1.5 billion (22% of total world population) in 2050. Moreover, the number of those 80 years or above is expected to rise from 125 million to 434 million, by 2050.

The feasibility of DMT in elderly is well recognized. The two groups which Mariam Chace opted to work with, in 1942, were psychiatric and elderly. It would be highly advisable to schedule most of the sessions with elderly in settings of special care type like hospital, community center or a well-equipped residential home. A warm and well-greeted atmosphere, under supervision of a trained therapist, needs to be created for the group. To expect progress the participants must be motivated to attend DMT sessions on regular basis. The health outcome is much better in those who are regularly regular.

DMT has been found to exert beneficial effects on overall well-being in elderly. Moreover, it improves balance and mobility and reduces risk of falls which is a serious problem of aging population [24]. A Brazilian [25] and another British study [26] revealed that the impact of uniqueness
of dancing was not limited to age-related physical aspects but also on self-perception and psychological well-being.

3.2 DMT for Patients with Disabilities

“Being disabled should not mean being disqualified from having access to every aspect of life.” Emma Thompson (1959-) - British Writer.

There is significant association between COPD and major physical limitations and comorbidities in elderly population. In an American telephone survey of health-related behaviors, it was found that the mobility disability, had the highest prevalence of 45.9% in 2016 and 48.4% in 2017.Interestingly, the highest prevalence was noted among those 45-64 years old, contrary to those of 65 years or above. Clinical depression and anxiety were noted in 40% and 36% respectively in 60-89 aged outpatients with COPD, in a university teaching hospital of United Kingdom.

Certain Disability Arts Organisations, National Institutes of Dancing, Disability-related Dance Companies and National and International Disability Organisations, with good resources, offer advice and support to persons with disabilities. They provide more opportunities for disabled and would be of special interest to COPD patients with disabilities planning to avail the benefits of DMT. Adding physical activity in the form of DMT, to such patients is an effective tool of improving their functional fitness.

Wheelchair Dancers Organization (WDO), by providing well structured supervised dance sessions, to all those in need of special assistance, has succeeded in bringing remarkable change in their lives. An inspiring, instructive and invigorating message from Beverly Weurding, the Founder, is “We have no limitations except those we place upon ourselves.”

3.3 DMT for COPD Patients during COVID-19 Pandemic

“The debilitating symptom of breathlessness often limited COPD patients’ participation in social activities. Consequently, many became socially isolated and prone to developing depression”. Suk Fong Wai et al

Philip et al have argued that COVID-19 pandemic will affect all people with chronic respiratory diseases (notably COPD) having potentially detrimental affects on physical, psychological and social wellbeing. The present situation reveals that the individuals with COPD, notably those over 70 years, are particularly vulnerable to intensification of respiratory symptoms and some of them may experience serious psychological disorders. Alarmingly, over one third of COVID-19 afflicted hospitalized patients were found to have respiratory pre-existing conditions such as COPD, as reported by the Centers for Disease Control and Prevention. It may be due to the infection itself, mandatory isolation/quarantine at designated centers; and impending hospitalization.

The appropriate prophylactic measures (home isolation, social distancing, limiting outdoor activities, prohibiting participation in group exercises) are likely to add to already existing physical inactivity and heighten stress and depression, with deleterious effects on overall well-being. There is tangible need to identify activities which could have positive impact on their physical and mental health. Solo dancing, while restricted to home, is a highly accessible, doable, feasible, sustainable and beneficial alternative. As suggested by Shilagh Mirgain “Dance just for yourself, allowing any movements to flow that feel good - or pretend that someone is watching to enhance your personal dancing experience.” Online group-sessions for dance are available for those, willing to get benefit.

4. Conclusion

“…..The care of the chronically ill is moving toward methods that aim to preserve and enhance quality of life of our patients and activities of daily living through identification of their culture, motivation, caregiver/home trends and perceptions of daily wellness routines”. Joanne Loewy - Director Louis Armstrong Center at MSBI.

DMT, a pleasurable and feasible exercise, has been found to be equally efficacious when compared to routinely prescribed physical exercises. It has aesthetic expression, attractive to both genders irrespective of age, tempting to those with disabilities, and a fruitful tool in developing self-confidence. Under the present stressful situation of COVID-19 Pandemic, when COPD patients are particularly vulnerable to intensification of symptoms, DMT should be confidently prescribed to them. Even when delivered remotely, it is more relevant to promote their physical activity and wellbeing at a time when they have been subjected to more strict home isolation.

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