



REVIEWING AVAILABLE ONLINE PUBLICATIONS ON THE EFFECT OF DANCE ON THE PHYSICAL AND MENTAL HEALTH OF CHILDREN AND ADOLESCENTS

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Abstract The purpose of this research paper is to review the literature on dance and its impact on children and adolescents' physical health, physiology, psychology and quality of life, as well as its impact on their social behavior and social relationships. With this objective in mind, we carried out an extensive review of the existing literature in the following databases: MEDLINE, AMED, SCOPUS, ERIC, EMBASE and GOOGLE SCHOLAR. Based on this review, it appears that dancing may be a suitable activity that encourages and prompts people to adopt healthy behaviors. In particular, the literature shows that during dance activities performed by children and adolescents, there are significant benefits to a healthy development of the body, to the improvement of mental and emotional health, as well as to the improvement of their social behavior and social relations. In addition, according to the literature reviewed, even during the Covid-19 pandemic, dance seems to be an efficient means

of inspiring active engagement in children and adolescents. A means which can be available beyond in-person teaching, while still offering all of the benefits of the subject matter at the same time.

Keywords benefits, dance, mental health, well-being, quality of life, fitness, children and adolescents

Introduction

Physical activity for children has significant benefits in health, which involve healthy growth and body development and prevention of obesity, but also the general protection of health during adulthood (World Health Organization, 2009; Janssen, Leblanc, 2010). Physical activity is a major factor that affects cardiovascular mortality, as well as, cardio-respiratory ability, fitness and obesity; it reduces the risk of developing a coronary heart disease, diabetes, stroke, some types of cancer and depression, while it increases neuromuscular coordination and improves self-esteem (Fox, 2000; Robinson et al., 2003; Nocon, Hiemann, Muller-Riemenschneider, Thalau, Roll, Willich, 2008; Robinson et al., 2008; World Health Organization, 2009; Theocharidou, Lykesas, Giosos, Chatzopoulos, Koutsouba, 2018).

According to a number of studies, dance is a pleasant physical activity that attracts both young and elderly participants. As a physical activity and a creative art form, dance is placed highly in the agenda of healthy living (Khan, 2000; Arts Council of England, 2004, 2006; Lykesas, Siskos, Zachariadou, 2010; Mavridis, Filippou, Rokka, Bousiou, Mavridis, 2004; Burkhardt, Brennan, 2012; Romero, 2012). It is well known that dance offers an active, different form of exercise that could have positive results in physical health, as well as, mental, and emotional well-being (World Health Organization, 2010). It is a means of expression and communication, which gives the individual a possibility to express freely, as well as, know oneself and the way to interact with others (Alicrison, Harms-Ringdahl, Eriksson, Werner, 2003; NDTA, 2004; Burgess, Grogan, Burwitz, 2006; Tsompanaki, Lykesas, 2020).

Many scientific studies report the physical and psychological benefits of dance, especially in the context of dance and movement therapy (Flores, 1995; Bennell et al., 2000; Blair, Cheng, Holder, 2001; Jeong et al., 2005; Quin, Frazer, Redding, 2007; Steinberg et al. 2008). Especially when it comes to children and young people, dance as an art form, is considered a «bridge for the mental health of children and adolescents», it can contribute to their cognitive and emotional development, which is related to the students' academic performance (Bennell et al., 2000; Minton, 2001; Akandere, Demir, 2011; Lykesas, Giosos, Theocharidou, Chatzopoulos, Koutsouba, 2018). Through dance, movement is transformed into a purposeful phrase of action that encompasses physicality, emotion, and cognition (Azevedo, Watson, Haighton, Adams, 2014; Mavropoulou, Barkoukis, Douka, Alexandris, 2018). According to researchers, engaging children and adolescents in dance and movement therapy programs improved their improvisation skills, their body control, balance, and coordination, as well as kinesthetic awareness, musical rhythmic skills, muscular strength, flexibility and stamina (Chatzopoulos, Doganis, Kollias, 2018; Chatzihidiroglou, Chatzopoulos, Lykesas, Doganis, 2018; Lykesas, Giosos, Douka, Bakirtzoglou, Chatzopoulos, 2019; Chatzopoulos, 2019; Kapodistria, Chatzopoulos, Chomoriti, Lykesas, Lola, 2021). In addition to those, dance also has a positive influence on the improvement of their social relationships, their self-perception, and, generally, their quality of life (Lykesas, Chatzopoulos, Koutsouba, Douka, Bakirtzoglou, 2020). Dance also contributes to the socialization of individuals who have been isolated by society but it can also help to prevent depression and violent behavior (Leste, Rust, 1990; Koshland, Wittaker, 2004; Jeong et al., 2006; Lobo, Winsler, 2006; Soares, Lucena, 2013;

Quinones, Gomez, Agudelo, Martínez, López, 2018). It is for all the aforementioned reasons that dance is indeed considered of crucial importance in the development of young people, and their creative, artistic, personal, and social skills (Bungay, Vella-Burrows, 2013). At this point, it is important to note that according to research, even under the circumstances of the Covid-19 pandemic which brought about novel practices of learning and teaching, children and adolescents still benefited from the positive impact of dancing, through their engagement with it. More specifically, the Covid-19 pandemic resulted in the dance teaching community having to utilize online lessons (Gingrasso, 2020; Tariao, Yang, 2021), and authors such as McGreevy-Nichols, Dooling-Cain (2020) and Coelho, Menon (2020) and Re (2021), carried out research which showed that online lessons are a safe way to keep learning uninterrupted, as they provide the same knowledge and the same benefits that in-person lessons do (Nancy, 2020; Yariv, Shalem-Zafari, Wengrower, Shahaf, Zylbertal, 2021).

As evident from the information outlined above, the purpose of this paper is to review the literature on dance and its impact on children and adolescents' physical health, physiology, psychology and quality of life, as well as its impact on their social behavior and social relationships.

Method

For this review of studies, a search in respect of health and quality of life was conducted in the following scientific databases: MEDLINE, AMED, SCOPUS, ERIC, EMBASE and GOOGLE SCHOLAR. The methodological quality was assessed using criteria based on the CRD hierarchy of evidence (Centre for Reviews and Dissemination (CRD) 2009). Studies were included as long as they reported effects of a dance intervention program in the physical and mental health of children and adolescents. Additionally, the studies involved refer strictly to children and adolescents. Only published research studies in English were taken into account and no research in the literature of other languages nor in unpublished works was conducted.

Results

From the database research 1,232 studies were found, from which seventy-two (72) were considered for potential selection based on their abstracts. After removing double studies, sixty (60) studies were considered optimal for full reading and evaluation. From these, twenty-nine (29) studies fulfilled the criteria and were selected to be included in this review. These twenty-nine (29) studies were divided into two categories: in the first category, fifteen (15) were selected and concerned physical health, and in the second, fourteen (14) were selected and concerned the psychosocial health of children and adolescents. The studies involved a wide range of lesson methodologies, as well as, various dance styles and they were clearly experimental. In addition, the study review included seven (7) research papers on engaging with dance during the Covid-19 pandemic.

Findings in body health through dance (fitness, health, obesity and neuromuscular control)

Fifteen (15) studies examined the importance of dance as an intervention program in the improvement of child and adolescent health and produced great results. Five of these studies concerned fitness and health (Blackman, Hunter, Hilyer, Harrison, 1988; Flores, 1995; Blair et al., 2001; Alricsson et al., 2003; Mavridis et al., 2004). In one of these, Flores (1995), designed an intervention program, Dance for Health, in order to provide Afroamerican and Spanish speaking children, aged 10–13 years, with a pleasant aerobic dance program to improve aerobic

ability, helping students reduce weight and improve their attitude towards physical activity and fitness. The results showed great reduction of BMI (Body Mass Index) and significant improvement of their attitude towards their fitness. The study of Blair, Cheng, Holder (2001) showed the positive impact dance has for more active individuals on their fitness and longevity and their reduced risk of heart and cardiovascular diseases, strokes, and colorectal cancer. Blackman et al. (1988) implemented a 4-month long aerobic dance program for high school students, the results were positive in terms of BMI reduction, significant improvement of students' fitness, self-image, and self-esteem. In the study of Mavridis et al. (2004) 6 and 7 year-old first graders of a primary school followed an aerobic dance program that improved their fitness, as well as, their cardio-respiratory ability, strength, stamina, and flexibility. Alricsson et al. (2003) implemented a dance program in 12–15 year-old adolescent skiers, the results showed that participating in dance programs generally improved their fitness, speed, agility, joint mobility and they increased the flexion-extension of the thoracic spine and the lateral flexion of the spine.

A total of six (6) studies showed the positive impact of dance on obesity, BMI, and the percentage of body fat (Bennell et al., 2000; Robinson et al., 2003; Robinson et al., 2008; Steinberg et al., 2008; Romero, 2012; Azevedo et al., 2014). In his study, Romero (2012) addressed adolescent girls and boys of a Mexican-American origin that faced obesity and socialization problems. The implementation of a hip-hop and latin dance program showed that girls reported BMI reduction and better communication in their relationship, whereas boys only developed better social relationships. Also, a study by Azevedo et al. (2014) in terms of the impact Exergaming dance has on students aged 11–13 years, was characterized as a pioneer method to promote physical activity in the school environment. The results showed that the intervention had a significantly positive impact on weight, BMI, and the percentage of body fat. There was also improvement in some parameters of the quality of life that related to the students' psychological well-being and autonomy. The study of Bennell et al. (2000), showed that the participation of 8–11 year old girls in dance programs such as ballet, produced positive impact on their body density (BMD). The study of Steinberg et al. (2008) examined the body structure of girl dancers and non-dancers aged 8–16 years. They implemented a program with several dance styles, such as ballet, modern dance, and jazz, in order to evaluate if there were differences in BMI, height, and fat distribution between the two groups. The results showed that there were significant differences in terms of physical constitution and fat distribution while in terms of musculoskeletal development (height) there was no difference between dancers and non-dancers. Two studies by Robinson et al. (2003, 2008), researched if a therapy through expressive dance limited the time students watched TV and if it influenced body weight in 8–10 year old African-American girls. The intervention lasted twelve weeks and consisted of expressive dance lessons that were realised after school in a community Centre and 5 interventions of dance lessons which were realised at the participants' houses. All interventions produced satisfactory results. The girls of the intervention group showed reduction of their body mass increase and increasing after school physical activity, as well as, they reduced the time they watched TV, videos, and played videogames.

A limited number four (4) of studies concerned the effects of dance on sensorimotor coordination (neuromuscular control). According to Chatzopoulos (2019), Chatzihidioglou et al. (2018) and Lykasas et al. (2019) dancing has positive effects on proprioception, balance, sensorimotor synchronization and maybe response time (Kapodistria et al., 2021) of young children.

Findings in mental health through dance (self-esteem, depression, social behavior and life satisfaction)

In this review fourteen research studies on psychological well-being were also included. In particular, the study of Quin et al. (2007) points out the benefits of dance in the physical and mental health of children. Moreover, it gives information on how creative dance improves children's physical activity and their psychological wellness and, therefore, it promotes their health. It also shows that active young people are more likely to stay active in their adulthood, and that dance is a medium with great impact on the creation of a life-long healthier and more active lifestyle. In this study, children aged 11–14 years participated in a 10-week long program that researched the students' attitude towards dance. Both in boys and girls, there was an increase in all factors of fitness, as well as, in psychological fluctuations, self-esteem, internal motivation, participation for pleasure. Mavropoulou et al. (2018) examined the effect of different types of dance on subjective vitality of 252 primary school students. They were divided into three groups: a) the first group included modern, aerobic, hip hop, zumba, and expressive dance, b) the second group included traditional dance and c) third group, volleyball, basketball and football. The results showed that the different types of dance along with the traditional dance managed to keep the vitality of the students at a high level. On the contrary, the control group showed a significant reduction in vitality levels. Bungay, Vella-Burrows (2013) examined the impact creative dance has on the health and well-being of adolescent students aged 11–18 years. Upon the implementation of the program, it was evidenced that creative dance has a positive impact on changing the behavior among children, their self-confidence, their self-esteem, the levels of knowledge, and physical activity. The study of Leste, Rust (1990) with the implementation of contemporary dance in a group of adolescents showed positive results in the significant reduction of stress and improvement of self-esteem. The study of Burgess et al. (2006) researched the impact of aerobic dance on 13–14 year old girls with bad body posture and poor self-perception. The results showed significant improvements in their body image, self-esteem, and self-perception. Minton (2001) in her study states that the participation of high school girls and boys in aerobic dance lessons has a positive impact on their self-esteem and self-image. Furthermore, the study of Lykesas et al. (2010) showed that a greek traditional dance program addressed to high school students improved greatly pleasure, communication, respect, and collaboration among students. The research by Lykesas et al. (2020) evaluated the impact of a greek traditional dance teaching program on improving the classroom environment and increasing the students' satisfaction in the lesson of Physical Education (PE). The results of this program were positive, the students who were taught greek traditional dances showed greater satisfaction in the PE lesson, as well as a tendency to provide a caring environment and change of behavior in their classroom. Additionally, the results stated by Lobo, Winsler (2006) regarding an eight week long educational program on creative dance in preschool-age children, showed great progress in social ability and improvement in their behavior towards other students, as well as, towards teachers and parents. The research by Tsompanaki, Lykesas (2020) examined the impact of community dance on children aged 4–7 years, regarding the improvement of social inclusion in a team, as well as, the collaboration among students. The findings of this research showed that the program had positive impact on social relationships, communication, and collaboration among students.

The aforementioned positive effects of dance on the improvement of social skills, corroborate research which demonstrates a decline in incidents of aggressive behavior, and the adoption of healthier behaviors through dance intervention programs. Four studies in particular investigated the impact of dance on social skills, the improvement of social relationships, depression, and psychological distress of the students (Koshland, Wittaker, 2004; Jeong et al., 2005; Soares, Lucena, 2013; Quinones et al., 2018;). The study by Koshland, Wittaker (2004) investigated the

decrease of incidents of aggression and the improvement of relationships through a program of creative dance in primary school students. The results showed that educators observed great changes in the students' perspectives and emotions regarding social behavior. They also showed improvement in their relations, inside the classrooms. The study by Jeong et al. (2005) examined the participation of adolescents with mild depression (average age of 16 years), in a Dance Movement Therapy program (DMT) through expressive dance. The results showed that all levels of the psychological discomfort scale were greatly reduced. Furthermore, the concentration of serotonin in plasma was increased, while dopamine concentration was decreased. These results denote that DMT may stabilize the sympathetic nervous system. Therefore, DMT can prove to be effective in the improvement of psychological discomfort in adolescents with mild depression. In terms of psychological balance, an increase in self-confidence, development of expressiveness, love for the activity, and, above all, sense of justice were observed. Soares, Lucena (2013) examined the role of dancing as a psycho-social tool in a group of fifty-five students, ages 6–11 years old who lived in unsafe socio-economic and school environments with incidents of bullying. The program lasted for a school year and utilised movement games as well as types of dances such as hip-hop, modern jazz, traditional folk dances and international dances. The results showed that students developed a positive attitude towards accepting feedback, respecting the rules, autonomy and collaboration, as well as improvement of the relationships among them.

The authors Quinones, Gomez, Agudelo, Martínez, López, (2018) implemented an intervention consisting of a 120-h training program in dance movement strategies in five violence-affected municipalities in Colombia. The aim of the intervention was to assess any possible changes in the participants' states of mindfulness, bodily connection, emotional intelligence, somatic complaints, aggressive reaction, empathy, agency, and subjective emotional experience. The results showed significant changes in mindfulness, bodily connection, emotional intelligence and regulation, somatic complaints, aggressive reaction, agency, perspective taking, sleep and appetite.

Research on dance during the Covid-19 Pandemic

Since the Covid-19 pandemic has brought about radical changes in the daily lives of citizens, there is research that shows that it is possible to engage in dance beyond the scope of in-person teaching (Re, 2021). The Covid-19 pandemic has greatly affected education in general and dance education in particular (Tariao, Yang, 2021). Dance education has now shifted towards the internet. Children and adolescents dance and enjoy dance online (Nancy, 2020; McGreevy-Nichols, Dooling-Cain, 2020). However, for some students, there are some issues which arise such as space, privacy and internet access. With this in mind, teachers and students have the opportunity to re-evaluate their pedagogical and learning strategies (Gingrasso, 2020). Since the dancing activity does not require special equipment and facilities to exercise, according to research, online dance lessons have been a legitimate alternative form of physical activity which upholds all the positive effects of dance on physical and mental health (Coelho, Menon, 2020; Yariv et al. 2021). In particular, it has been proved to be effective in reducing sedentary behaviors and stress, and in enhancing daily physical activity and the immune system (Coelho, Menon, 2020).

All studies converge on the fact that online courses are just as safe to keep learning uninterrupted, providing the same knowledge and also the same benefits as in-person courses do (Nancy, 2020; Gingrasso, 2020; Coelho, Menon, 2020; McGreevy-Nichols, Dooling-Cain, 2020; Re, 2021; Yariv et al. 2021).

Discussion

Dance is an elaborate motor tool that helps individuals develop social skills and interests so as to enjoy a stable social life (Lobo, Winsler, 2006). The literature review demonstrates the benefits of dance for young people and adolescents in particular, and in many different areas. More specifically, the results of the review showed that there are significant benefits in health and healthy growth and body development, as well as, prevention of obesity and heart condition. Interventions that involve different dance styles and research protocols benefit balance and rhythm, neuromuscular coordination, and fitness, but also, improve psychological health, boost self-esteem, have positive impact on depression, develop collaboration skills and effectiveness in the educational process, as well as, social relationships (Blackman et al., 1988; Leste, Rust, 1990; Bennell et al., 2000; Minton, 2001; Alricsson et al., 2003; Mavridis et al., 2004; Quin et al., 2007; Chatzihidiroglou et al., 2018; Lykesas et al., 2018; Chatzopoulos, 2019; Kapodistria et al., 2021).

In addition, research shows that dance can reduce incidents of aggressive behavior among children and improve their social behavior (Koshland et al., 2004; Jeong et al., 2005; Soares, Lucena, 2013; Quinones et al., 2018). This fact is particularly encouraging in terms of preventing and dealing with adverse incidents and bullying, which has been prominent worldwide (Craig, Peplerband, Blais, 2007; Morres, Galanis, Hatzigeorgiadis, Androutsos, Theodorakis, 2021).

Apparently dance can be a way to attract young people in order to engage them in physical activity and possibly become an alternative form of exercise for children and young people that usually dislike traditional forms of exercise (Robinson et al., 2003, 2008). This may be attributed to the many forms of dance and the range of choices that children and adolescents have at their disposal, to choose the type that suits them best and engage with it, or it may be due to how the subject matter itself is taught. Because of its pleasant and social nature (Wanless, 2004; Quin et al., 2007), dance provides children and adolescents with a different form of kinetics than other forms of exercise do. Through movement and music, children and adolescents have the opportunity to express themselves in distinctive ways, liberating their minds, bodies and emotions (Caf, Kroflic, Tancig, 1997; Sothern, Loftin, Suskind, Udall, Blecker, 1999; Tsompanaki, Lykesas, 2020).

According to the literature review, dancing can improve both physical and mental health (Khan, 2000; Janssen, Leblanc, 2010). Therefore, considering that physical movement is a significant public health issue (Carter, 1984), then the claim that dance could contribute to meeting basic health needs can very well be valid. For this reason, it is important to note that dancing as a motor activity has been an alternative form of exercise even during the Covid-19 pandemic. As is well known, the Covid-19 pandemic has influenced education worldwide in significant ways by diversifying the way the educational process takes place; by adopting innovative teaching methods such as online courses, which is a safe way to keep the learning process uninterrupted (McGreevy-Nichols, Dool-Cain, 2020; Nancy, 2020; Coelho, Menon, 2020; Re, 2021). Relevant research has shown that children can engage in dance through the use of the internet and in fact gain the same positive effects of dance on physical and mental health (Gingrasso, 2020; Yanuartuti, Handayani, 2020) as in-person teaching provides (Yariv et al., 2021).

Finally, it should be noted that this research is subject to methodological limitations. These limitations pertain to the different methodological designs, regarding the ages of the participants, the different types of dance, the teaching methods and the duration of the interventions, which make it difficult to compare the results of the research. However, despite the above limitations, all research demonstrates the importance of dance in the physical and mental health of children and adolescents. For this reason, it is recommended that further research should be

carried out on the effect of teaching methods and the comparability of different forms of dance, in order to design effective interventions and improve dance teaching to further reap the benefits of dance.

Conclusion

The results of the above literature review show that dance, as a motor activity, but also as a pedagogical tool, contributes to the healthy development of the body, to the improvement of mental and emotional health, as well as to the improvement of social behavior and social relations of children and of adolescents, in a positive way. This is important, as dancing can have a beneficial impact and lead to a healthier lifestyle, not only during childhood and adolescence, but also throughout one's life.

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