



Application of Dance Movement Therapy to Stress Levels: A Meta-Analysis Study

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ABSTRACT

The Perceived Stress Scale, Self-Rating Depression Scale, Academic Stress Scale, and Distress CORE were used to determine the effectiveness of Dance Movement Therapy in lowering stress. A meta-analysis utilizing jamovi 1.6.6 was used as the approach. This research was conducted using a literature evaluation of 11 experimental journals on the effects of Dance Movement Therapy on stress (total n experimental group = 491 and total n control group = 454), for a total of 945 participants. Dance Movement Therapy was shown to be less effective in lowering stress levels ($d=0,427$), with a medium effect size. According to the findings, Dance Movement Therapy is less successful at reducing stress levels, hence it will be more effective if one type of dance/intervention is used in conjunction with other interventions.

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BACKGROUND

Stress is a phenomenon that often appears in everyday life and is experienced by every individual. This phenomenon has been an important study for a long time and often occurs at all levels of age and education. This can be seen from the prevalence of individuals experiencing stress which is 62.4% (Bayram & Bilgel 2008; Beiter et al. 2015, Kulsoom & Afsar 2015, in Arusha & Biswas, 2020). Another study also found that in Bangladesh stress levels were reported to reach 59% (Hossain et al., 2014; Alim et al., 2017; Saeed et al., 2018; Mamun and Griffiths, 2019; Mamun, et al., 2019; Arusha & Biswas, 2020).

Indonesia will experience an increase in stress levels by 75% in 2021. In 2020 the stress level in Indonesia will be 73% (Ginanjar, 2021). According to The Least and Most Stressful Cities Index 2021, Jakarta is ranked 9th based on 100 global cities experiencing high stress levels (Anggela, 2021). Siti Wahyuningsih's research with 47 respondents from Surabaya community consisting of 17.8% experiencing high stress, 68.9% moderate stress and 13.3% classified as low stress (Hermawan, 2021).

Based on the prevalence above, this can be stressful due to several factors involved. These factors include socioeconomic, environmental, cultural and psychological attributes (Brand & Schoonheim-Klein, 2009, in Arusha & Biswas, 2020). Stress is also caused by several other factors such as work problems, exams, family problems, illness, and divorce (Musradinur, 2016). It can be concluded that stress conditions can be experienced when reality does not match the expected conditions.

Stress according to Lazarus and Folkman (in Amiruddin & Ambarini) is a stimulus or response when under pressure or tension. Stress emphasizes the relationship between the individual and the

environment by taking into account individual characteristics and events experienced in the surrounding environment. The pressure felt within a person is called stress (Mochamad, 2019). Stress is one of the interactions of individuals with the environment so that it can cause pressure that exceeds the individual's ability to deal with and provide a physical or psychological response to a perceived demand (Bishop, in Sudarya, Bagia & Suwendra, 2014)

Stress has a negative and positive impact on individuals. The positive impact experienced by individuals is called eustress while negative stress is called distress (Gadzella, Baloglu, Masten & Wang, 2012, in Lumban Gaol, 2016). Important factors in helping in times of positive stress (eustress) such as positive attitude in life, self-confidence, positive perception, expecting the best from oneself and expectation to get rewarded. Some of the characteristics of eustress are motivating and focused on strength, short-term, good coping strategies, feeling good and getting better performance. Meanwhile, negative stress (distress) is seen from individuals feeling excessive worry, not feeling happy, decreasing performance, and even finding it difficult to overcome the problems experienced. This is usually caused by the death of a family member, experiencing an illness, unemployment, excessive work demands, work discomfort, interpersonal and intrapersonal conflicts, and even other family problems (Eredoro & Egbochuku, 2019).

Individual symptoms or signs of stress that are first related to physical are headaches, indigestion, difficulty sleeping or lack of sleep, heartburn, night sweats, reduced sexual desire, irregular menstruation, muscle tension, back pain/pain, loss of appetite. eat to change weight. Second, these symptoms are related

to emotions such as mood swings, frustration, depression, moodiness, anxiety, and increased consumption of nicotine, alcohol and illegal drugs (Jovanovic, Lazaridis & Stefanovic, 2006 in Lumban Gaol, 2016). In addition, symptoms of stress can also be seen from interpersonal relationships such as losing self-confidence and other people, finding fault with others, withdrawing and others (Oktaviani, et al., 2016)

Sarafino (2014) stress that is too heavy and negatively perceived eating in time long enough will cause chronic stress and generate negative emotions. On the other hand, stress can be considered as a physiological response to events and situations that cause disturbances in the body. The experience of stress is influenced by the way a person evaluates events and situations because each individual will experience different stressful events and conditions (Eredoro & Egbochuku, 2019). This is explained by Meyer, 2013 (Renteria, et. al, 2020) that higher stress levels will have an impact on mental illness.

Based on this, there is a need for interventions or ways to reduce stress levels. One way to reduce stress is dance movement therapy, because this therapy can solve problems for individuals who experience high levels of stress. This dance therapy can help individuals to overcome feelings that are difficult to accept or express (Trossero, in Pinniger et al., 2012).

Dance therapy (dance movement therapy) is one of the creative arts therapies that also includes art, music and drama therapy. DMT uses movement and dance for psychotherapy purposes by utilizing aspects of body movement expression, creativity in dancing and psychotherapy insights. This media can increase the integration of physiology and psychology (Weiner & Craighead, 2010, in Kiepe et al., 2012). DMT emphasizes creativity as a source of change

by maintaining the importance of the therapist-client relationship (Wengrower, 2009, in Kiepe et al., 2012). In addition, DMT can also be defined as a motion psychotherapy with emotional, cognitive processes, integration between social and physical individuals (American Dance Therapy Association; Goodill, SW, 2005, in Rahmawati et al., 2018).

DMT works on motor function by making individuals stretch muscles, perform steps and maintain balance. DMT also works on cognitive function by requiring individuals to plan and execute imaginary movements with music, remembering repetitive movements and keeping the body in balance. Individuals can express feelings, increase motivation and provide enjoyment through the movements performed (Nadase, 2008; Palo & Ekman, 1997; Kim, Ito, Nakatukasa, & Sakairi, 2014, in Hashimoto et al., 2015). DMT has 3 categories according to age level, namely kids (train station, hand dialogue, shadow, and fids dance), andolancents (free dance, modern, or traditional dance and adult and family (family choreography) (Jati, 2021).

DMT has 4 approaches, the first is the cache. These interventions such as body movements, symbolism, kinesthetic empathy and rhythmic group activities encourage expression and communication. Individuals will be moved empathically to build empathic connections and reflect empathy. Second, psychodynamic oriented dance therapy approach which is characterized by body and mind activities that integrate improvisational movements and psychodynamic analysis of movement experiences and relationships in groups. Improvisation in this DMT expresses feelings and subconscious states comparable to psychoanalytic free associations, and active imagination which contains concrete and symbolic meanings. Third, authentic movement is a derived form of meditation

Get out of deep movement by listening to the mind in a non-hierarchical and completely self-directed way. Fourth, integrative dance therapy integrates the concepts of chace, withouse and lilian espenak and emphasizes trudi schoop (Levy, 2005; Sandel, 1993; Bräuninger, 2014). Thus, this intervention can be used as therapy according to the problems experienced.

Various problems experienced by individuals, DMT has various benefits, namely increasing physical fitness, improving mood, increasing cognitive abilities, increasing self-confidence, inducing the release of endorphins, decreasing the risk of dementia, improving social skills and practicing problem solving (Jati, 2021). DMT can help reduce stress that is often experienced by all people, this emotionally DMT can make individuals have self-awareness, reduce stress and the best means to express emotional feelings (Dewi Sagita et al, 2018; Jati, 2021).

The reason for the meta-analysis is to improve statistical analysis. Thus, this study can summarize several previous studies that used dance movement therapy to reduce stress levels. This is reinforced by research from Brauninger (2012) explaining that the effects of dance movement therapy can provide significant changes in stress management and reduce stress levels (Aithal, 2019).

Based on the explanation above, dance movement therapy is given to reduce the stress level experienced by each individual. Giving dance movement therapy helps individuals to express feelings, be more confident, and help solve problems so that individuals can release the stress they are experiencing. This makes individuals able to face difficulties by expressing their feelings and thoughts to others and themselves. Therefore, this study aims to determine the effect of giving dance

movement therapy to reduce stress levels by summarizing several journals.

RESEARCH METHODS

Information research through a search

Collecting data from prior scientific journals and searching for several research using the PRISMA checklist writing criteria. In Scencedirect, DOAJ, and Microsoft Academics, the keywords "Dance therapy for stress-controlled trial," "Dance Movement Therapy for stress-controlled trial," "Movement therapy for stress-controlled trial," and "aerobic for stress-controlled trial" were used to search for previous research. The journals were chosen based on the titles, methodologies employed, and measuring tools used in the research to ensure that they fit the meta-analysis' requirements. Previous journal searches were conducted from February 8 to 10, 2022, and assessed on February 11, 2022.

The Perceived Stress Scale, Self-Rating Depression Scale, Academic Stress Scale, and Distress CORE measuring instruments will be employed in the form of research employing a randomized controlled trial approach. Furthermore, the intervention strategy employed in this study involves dancing movements or dance forms such as aerobics. There were 4,512 journals retrieved, however only 11 of them fulfilled the criteria of the researcher.

Analytical statistics

Meta-analysis was utilized to analyze the data in this study. Meta-analyses are methodical and quantitative collections of past research that others have conducted in order to arrive at accurate findings (Retnawati, 2018). By examining quantitative data from prior studies, the goal of this meta-analysis is to get effect size values that reveal differences or strengths between variables (Anwar 2005, in Putriana

& Adistana, 2021). Analyzing meta-data: a step-by-step guide Formulating meta-analysis research questions, gathering studies or research results as material for meta-analysis, calculating effect sizes, and generating reports on the analysis' outcomes are the first three processes (Retnawati, 2018). The effect size of the dance therapy intervention is calculated using N (number of participants), M (mean), and SD (standard deviation) from each experimental group. the amount of a difference or a relationship that has no bearing on sample size (Olejnik & Algina, in Tohari & Otok, 2014)

The Cohen d effect size, which includes tiny effect size ($d < 0.2$), medium effect size ($0.2 < d < 0.5$), and large effect size ($d > 0.5$), will show the effect size (Retnawati, 2018). The study also looked at the eiger bias for the publishing bias rule. If the eiger value is 0.05, it can be stated that there is no publication bias in this study. This suggests that the experimental outcomes are diverse due to the research journals used. If the eiger value is skewed by 0.05, the experimental results are the same in all journals. The Jamovi 1.6.6 application will be used to examine the impact size score and eiger bias (publication bias) in this study.

HASIL PENELITIAN

Table 1. Search and Research Results

Year	Researcher	Country	Instrument	Partisipant group	Valued
2019	1) S. Aithal	United Kingdom	PSI-SF	Experimental group M = 13.4 SD = 7.38 N = 5 Control group M = 11.4 SD = N =	-0.24
	2) V. Karkou				
	3) G. Kuppusamy				
	4) P. Mariswamy				
2018	1) T.H Rainbow	Hongkong	PSS	Experimental group M = 18.0 SD = 4.4 N = 63 Control group M = 19.8 SD = 4.2 N = 70	0.42
	2) T.C.T. Fong				
	3) P.S.F Yip				
2018	1) Chiu-Ling Yang	Taiwan	PSS	Experimental group M = 14.55 SD = 5.23 N = 60 Control group M = 13.85 SD = 4.63 N = 62	-0.14
	2) Chung- Hey Chen				
2018	1) E. Puterman	California	PSS	Experimental group M = 21.9	-0.22
	2) J. Weiss				
	3) J. Lin				

	4) S. Schilf			SD = 6.5	
	5) A. Slusher			N = 34	
	6) K. L			Control group	
	7) Johansen			M = 23.2	
	8) Elissa			SD = 5.1	
2018	1) Kristi Michels	Northwestern	BDI	N = 34	
	2) Ornella Dubaz			Experimental group	-1.03
	3) Erica Hornthal			M = 10.89	
	4) Danny Bega			SD = 5.53	
				N = 9	
				Control group	
				M = 5.5	
				SD = 2.38	
				N = 4	
2016	1) V. Valarmathi	India	ASS	Experimental group	3.53
	2) R. Tamil Selvarasan			M = 83.47	
	3) A. Judie			SD = 6.37	
				N = 88	
				Control group	
				M = 107.35	
				SD = 7.12	
				N = 82	
2015	1) H. Hashimoto	Japan	SDS	Experimental group	0.71
	2) S. Takabatake			M = 39.7	
	3) H. Miyaguchi			SD = 7	
	4) H. Nakanishi			N = 15	
	5) Y. Naitou			Control group	
				M = 45	
				SD = 7.6	
				N = 14	
2015	1) Nikitac Hazarika	Bengaluru	Occupational Stress	Experimental group	0.28
	2) Jayasankara Reddy K			M = 136.13	
				SD = 10.763	
				N = 30	
				Control group	
				M = 132.3	
				SD = 16.604	
				N = 30	
2015	1) Rainbow	Hongkong	PSS	Experimental group	0.25
	2) T.C.T Fong			M = 18.4	
	3) Irene K.M			SD = 4.6	
	4) Cheung			N = 69	
	5) Paul			Control group	
	6) M. Luk			M = 19.5	
				SD = 4	
				N = 70	

2012	1) R. Pinniger 2) R.F. Brown 3) Einar B 4) Thorsteinsson 5) P. McKinley	Australia	ASS Psychological	Experimental group M = 19.85 SD = 9.85 N = 29 Control group M = 12.48 SD = 7.53 N = 21	0.81
2012	1) Iris Bräuninger	Spain	PSD	Experimental group M = 1.55 SD = 0.48 N = 97 Control group M = 1.53 SD = 0.46 N = 65	0.04

The statistical results of effect size analysis from 11 study data consisting of an experimental group and a control group, as shown in the table above and table 1, demonstrate a decrease in stress, but not considerably. The effect size is 95.01 percent based on the results of the effect size utilizing random.

Table 2 reveals that dancing movement therapy is less successful at reducing the individual's stress level. The effect size value through random effects is 0.427 (CI-0.258–1.112) and I² (inconsistency)

= 95.65 percent, according to the findings.

The findings of the P = 0.384 publication bias assessment are shown in Table 3. According to these findings, there is no research bias in the international journals that were used. Bias is a type of inaccuracy that arises in research when sampling or data gathering is done incorrectly, resulting in inaccurate estimations. As a result, the publication employed in this study is of sufficient quality to be used as a source for meta-analysis research.

Table 2. Plot of random effects of effect size meta-analysis

Random-Effect Model (k=11)							
	Estimate	Se	Ci Lower Bound	Ci Upper Bound	Z	P Value	Heterogeneity
Intercept	0,427	0,349	-0,258	1.112	1,37	0,170	95,01% Tau ² 1,2079

Table 3. Egger bias plots

Test Name	Value	p
Fail-Safe N	134,000	<,001
Kendall's Tau	0,200	0,445
Egger's Regression	-0,870	0,384
Trim and Fill Number of Studies	4,000	-

DISCUSSION

The effect size is rated as medium to large based on the results of statistical meta-analysis. According to this study, dance movement therapy has a small impact size or is ineffective. Dance therapy (dance movement therapy) has a significant impact on stress reduction. According to Valarmathi et al., (2016), dance movement therapy with a *d* value of 3.35 is effective in lowering stress levels. Apart from aerobics, there are other styles of dancing, such as the tango dance, which, according to Pinniger et al research is helpful in lowering stress levels with a *d* value of 0.81. (2012).

Some people's stress levels are influenced by environmental and personal factors. The experience of stress is also influenced by a variety of beneficial and less useful coping techniques. Some people who are unable to cope with stress will blame themselves, avoid, reject, and abuse substances (Friedman & Billick, 2014; Hastings, Daley, Burns & Beck, 2006 in Aithal et al., 2019). The significance of administering DMT aids individuals in finding a middle ground in solving conflicts, whether silently or openly. Feelings of guilt, humiliation, dread, helplessness, and a variety of other emotions can be accumulated through movement; however, the major key to reducing stress levels is to decrease the ego in order to achieve spontaneous movements that improve persons' health (Aithal et al., 2019). Individual stress will be reduced if one of the therapies, DMT, is used. It's probable that DMT, as a solitary intervention, plays a significant or effective impact in stress reduction.

According to the findings of the research, the outcomes of the dance intervention do not imply that it is an effective therapy for reducing stress levels. One of the aspects that influences the intervention's lack of success is the age,

culture, duration, and type of dance used in each study. Furthermore, the various types of measuring tools can have an impact on the outcomes that are less or ineffective. DMT has no effect in decreasing stress levels, according to Dibbell-research Hope's (Rainbow, 2015). This is due to the fact that it concentrates solely on motions that assist the user in relaxing and expressing sentiments. The absence of social support for participants in this study was a disadvantage, as was the lack of assistance in resolving their estrangement. Another study, Hazarika & Reddy (2015), found that social factors such as gender disparities, work, family dynamics, and coping methods had no effect on DMT's ability to reduce stress levels.

Several DMT studies have been successful in reducing stress levels, such as Bräuninger's (2014) study, which involved shifting cognitive perspectives and thoughts over the course of ten sessions. According to another study, Aithal et al (2019), DMT is a good choice for reducing stress and improving individual well-being in caregivers. Self-control, self-regulation, and disruptive conduct will all improve as a result of the DMT intervention (Valarmathi et al., 2016). At the nonverbal level of each individual, the technique of doing DMT together will develop the same and harmonious form. Individuals will feel calmer, comprehend their own sensations, and awaken vitality, expressiveness, and independence by using this technique (Bräuninger, 2014).

The varied effects of the DMT intervention are administered in their unique method, ranging from twelve to sixteen sessions. DMT is separated into three parts, the first of which is a warm-up that lasts roughly 10 to 15 minutes. The goal is to make the individual aware of his or her existence so that they can engage in the intervention physically, psychologically, and

emotionally. Second, it takes 20-30 minutes to design a concept. The purpose of the second stage is for people to express themselves and demonstrate their creativity by making and showing movements that correspond to the specified theme. This stage can be completed in a free association setting, where people are free to symbolically express their thoughts and emotions. Third, a 10–15-minute relaxation session that seeks to relieve physical and emotional strain while also calming the mind. Deep breathing and muscle relaxation can be used to complete this step (Stanto-Jones in Napitupulu, RPA, 2009; Osgood et.al, 1990; Stockley, 1992; Amalia, 2021).

DMT can be paired with physical activity, movement, expressive writing, and self-awareness, as well as other modalities (Bräuninger, 2012). To reduce stress levels, scientific research in providing DMT is accompanied by breathing exercises, meditation, and awareness. Exercise routine (Nutu, 2017). DMT will be combined with mindfulness, relaxation, and music therapy in training regimens that demonstrate optimal effects and are proved to be effective (Chiesa & Serretti, 2009; West et al, 2004; McKinney et al., 1997 in Nutu, 2017)

RECOMMENDATIONS AND CONCLUSIONS

According to the findings of this study, which included a meta-analysis of 11 publications, dance intervention was found to be less helpful in reducing stress levels. The characteristics of the respondents, their age, culture, genre of dancing, and the measuring devices employed all contributed to the ineffectiveness of this study. As a result, other researchers can investigate the efficacy of different stress-reduction methods. Furthermore, other researchers can focus on only one type of measuring device or one form of dance, as well as the period, to determine the efficiency of stress

reduction and coping methods in problem solving.

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