

Interventions of Dance Impacts on Somatic Symptoms and Psychological Health in Adolescent Girls, and Provide Scientific Guidance for School Mental Health Education

YaFu Huang¹, FuDe Pang², Chen Yao^{3*}

¹Department of Educational Administration, International College, Krirk University, Bangkok, 10220, Thailand.
Email: huangyafu213@gmail.com

²Department of Educational Administration, International College, Krirk University, Bangkok, 10220, Thailand.
Email: pan7632@yahoo.com.tw

³Department of Fine Arts, International College, Krirk University, Bangkok, 10220, Thailand.
Email: yaoc7819@gmail.com

Abstract

Aim and Objective: The purpose of this study is to examine the effects that dance interventions have on the somatic symptoms and psychological health of teenage girls and it also provides scientific guidance for mental health education in schools. **Methodology:** The participants in the research were female adolescents between the ages of 10 and 18 years old (mean years: 15.89±2.85). The criteria for inclusion were internalizing difficulties that were connected to stress, as well as several visits to the school nurse for both physical symptoms (such as headaches, stomachaches, weariness, and hurting shoulders) and emotional discomfort (e.g. persistent feelings of stress, nervousness, and anxiety). There were a total of one hundred teenage girls with stress-related internalizing disorders who participated in the research study. Of them, fifty were assigned at random to the dance intervention group, while the remaining fifty were assigned to the control group. **Results:** The majority of the females are between the ages of 14 and 16. Girls were present at a rate of 44% in the intervention group and 40% in the control group respectively. This was followed by a rate of 42% in the age group for 16–18 years old and 38% in the age group for 12–14 year olds. In the age group of 10–12 year olds, only 4% of girls were present. 78% of boys and 70% of girls engage in physical activity. For those participating in the dancing intervention and those serving as the control, respectively. At the beginning of the study, the total mean value for somatic symptoms was 3.25±1.25, and the mean value for emotional distress was 3.89±1.33. The emotional distress and somatic symptoms connection has a Pearson value of $r=0.84$, which indicates a strong relationship between the two. The levels of emotional distress before and after the intervention were as follows: stress 47 (94%) and 6 (12%), nervousness 45 (90%) and 5 (12%), anxiety 49 (98%) and 6 (12%), sadness 46 (92%) and 5 (12%), irritation 44 (88%) and 4 (8%), and powerlessness 47 (94%) and 4 (8%). **Conclusion:** According to the findings of the current research, dance therapies can alleviate stress-related physical symptoms as well as mental discomfort in teenage females. Nevertheless, the impact of the intervention was not sustained one year after the session had been completed, which suggests that participants need to continue frequent involvement in the intervention for the outcomes to be permanent. To assess the efficacy of the intervention in a variety of contexts, more randomized trials are necessary.

Keywords: Interventions of Dance, Somatic symptoms, Psychological health, Non-pharmacological, School health services

INTRODUCTION

It is estimated that 13% of children and adolescents throughout the globe struggle with mental health issues, making this one of the most significant crises affecting global public health at present.^[1,2] Somatic symptoms (such as headaches, stomachaches, weariness, hurting shoulders, and backaches) mixed with emotional discomfort (such as feelings of stress, worry, or melancholy) are significant indicators of a person's

mental health status and tend to coexist.^[3,4] As compared to male adolescents, female adolescents have a greater incidence of health complaints,^[5-7] have higher levels of stress and

Address for Correspondence: Department of Fine Arts, International College, Krirk University, Bangkok, 10220, Thailand
Email: yaoc7819@gmail.com

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somatic symptoms^[8], and are more prone to experience pain and depression symptoms.^[4,9] It's been shown that teenage females are more likely to experience loneliness, which poses a significant threat to both health and well-being.^[10] Since it has been established that physical symptoms in adolescence predict serious mental illness in adulthood, adolescents must get treatment for these symptoms as soon as possible, regardless of whether or not they are also experiencing co-occurring sadness and anxiety.^[11] Yet, it is still not obvious what kind of therapy should be administered to the patient. For teenagers who suffer from functional abdominal discomfort, cognitive behaviour therapy that is given via the internet has shown some encouraging outcomes, including a reduction in the severity of the patient's pain as well as an improvement in their quality of life.^[12] Another proactive method that might help enhance mental health is engaging in physical exercise.^[13] The favourable impacts of physical exercise on adolescents' mental health (for example, depression), well-being, mood, and self-esteem,^[14,15] as well as the positive influence it has on their social connectivity, are widely documented.^[14] In their study on treatments for the mental health of young people, Steiner *et al.*^[16] emphasize the significance of connectivity and the cultivation of a feeling of care, support, and belonging in these interventions. Young ladies are often seen participating in group dancing since it is a social form of physical exercise.^[17,18] It has the potential to be cost-effective^[18] and is a potentially valuable method of favourably impacting both the outcomes of one's physical health^[19] and one's psychological well-being^[20], as well as raising levels of self-trust, self-esteem, and self-expression in teenagers.^[21] There is an urgent need to raise the comparatively poor self-perceptions of teenage girls and to lessen the likelihood of their forming negative views about their bodies to lower the chance of these girls getting negative notions about their bodies.^[5] Dance is a kind of physical exercise that has various qualities that might be used to treat these difficulties. To name a few, they include putting more of an emphasis on the expressive, creative, and artistic components of physical exercise, as well as enhancing a negative body image.^[22] However, there is a worryingly low percentage of teenage females who engage in adequate levels of physical activity.^[5] It has been shown that multi-component treatments that are supported by the theory help to maximize regular involvement in physical activity,^[23] and it has also been shown that motivational support and pleasure are vital for teenage engagement.^[24-30] The major objective of this research was to determine whether or not a dance therapy program that lasted for eight months and was administered to teenage girls might alleviate the physical and mental symptoms of stress. At the point in time when we did the follow-up after the dance intervention, we expected that the dance intervention group would show stronger effects than the control group.

MATERIAL AND METHODS

Within the department, which had a total population of 90000 people, a randomized controlled intervention experiment was carried out. The participants in the research were female adolescents between the ages of 10 and 18 years old (mean years: 15.89±2.85). The criteria for inclusion were internalizing

difficulties that were connected to stress, as well as several visits to the school nurse for both physical symptoms (such as headaches, stomachaches, weariness, and hurting shoulders) and emotional discomfort (e.g. persistent feelings of stress, nervousness, and anxiety).

The Child and Adolescent Psychiatric Care unit advised avoiding involvement for anyone who met any of the following criteria: significant hearing impairment, intellectual disability, issues with the local language, or any combination of these. The process of recruitment was carried out in conjunction with the health services provided by the institution. The school nurses approached the girls who were eligible and inquired whether they were interested in taking part in the study. After the dissemination of information on the initiative, those individuals who indicated a willingness to take part supplied written consent. Written agreement has to be given by parents or guardians of girls less than 14 years old for them to participate. The participants were assigned to either a control group or a dance intervention group using a random number generator. The randomization was carried out by an independent statistician with the use of a computerized randomization list.

Participants in the control group were advised to continue living their lives as they normally would and were compensated with a movie ticket for each questionnaire that they filled out. As is customary, the school's medical services were made accessible to any and all attendees who needed them. When the school had let out for the day, the questioning sessions were held in an auditorium located inside the university hospital.

Intervention

The intervention in the form of dance took place in a central studio immediately after school on two separate occasions per week for a total of one year. Each dance class lasted for a total of one hour and ten minutes, with the first twenty minutes devoted to a warm-up, the following forty-five minutes spent on dance practices that emphasized body awareness, the final twenty minutes devoted to relaxation, and the final five minutes devoted to introspection. The majority of the dance was choreographed in themes such as African dance, show jazz, and street dance; nevertheless, there was always room for improvisation and spontaneous movements to stimulate creative thinking. There were no shows or performances; rather, the goal was to provide participants the chance to have a pleasant dancing experience with their peers in a social setting that was not competitive about 25 girls in each group, which highlights three basic psychological needs: competence, autonomy, and relatedness. When these needs are satisfied, self-motivation and mental health are enhanced.

To put it succinctly, the term "competence" was used in this scenario to refer to the fact that the instructors were able to recognize the various levels of dance ability possessed by the girls and, as a result, adapt the instructions as well as the choreographies to meet the requirements of the group, ensuring that everyone was provided with the opportunity to have fun. The teachers also gave sincere encouragement, which is a kind of competence support in its own right. The concept of relatedness, which in this context refers to the degree to which people have a feeling of belonging and connection with others in the social setting,

Since the girls came from a variety of schools and had not met each other in the past, the dance teachers made it a priority to cultivate relationships of trust and significance not just with the girls but also among themselves. This support for relatedness was offered using a variety of strategies, to increase the sense of social inclusion experienced by everyone.

The participants in the study were given the option to contribute input into the dancing lessons involving the choice of music, warm-up exercises, choreography, and dance themes. This was done to assist the component known as “autonomy,” which refers to an internal perceived locus of causation.

The SDT also posits that intrinsic motivation, which may be defined as participating in an activity to experience the activity’s inherent pleasure and satisfaction, is connected with better adherence and well-being. Throughout the stress management courses, there was no discussion of the difficulties associated with stress. After the conclusion of the intervention, the participants were given several options, one of which was the continuation of their dance, while the others enabled them to exercise in a different setting.

Measures

The questionnaire inquired about several facets of the respondent’s health, including their families, schools, levels of sleep, levels of physical activity, and past experiences with dancing. In this article, we focus on results for somatic symptoms and emotional distress because girls who have internalizing problems often express their symptoms using these concepts.^[31] The data were collected using a questionnaire that was administered at baseline and at 6, 12, and 24 months after baseline. The questionnaire was also administered at the six-month and twelve-month follow-up points. The questions that were included were taken from a survey that was conducted in Sweden called “Life and Health–Young People”^[32], and they are similar to the kinds of questions that were asked in a study called “Health Behavior in School-aged Children” (HBSC),^[5] which was a cross-national research project coordinated by the European Regional Office of the World Health Organization.

On a scale from one to five, the participants were asked to assess the frequency with which they had experienced a variety of physical and emotional symptoms over the course of the preceding three months (1 never, 2 occasionally, 3 sometimes, 4 often, and 5 constantly). It is important to note that the questions evaluated the preceding three months, to evaluate the efficacy of the whole intervention over the follow-up period of 12 months. The first follow-up was conducted after a period of six months, corresponding to the second semester of the time during which the dance intervention was still being implemented. The short-term follow-up (which lasted for 12 months) covered the time period immediately following the intervention, and the long-term follow-up, which lasted for 24 months, covered the time beginning approximately one year after the intervention had ended.

We utilized a six-item test to evaluate the somatic symptoms that are often linked with adolescents who have internalizing problems.^[5,31] The six questions were about headaches, stomachaches, vertigo, weariness, hurting shoulders, and backaches. These negative emotional states have a shorter duration than clinical depression and were captured by the six-item emotional distress scale. These emotional states might occur as a result of internal or external stressful situations. The person’s level of stress, nervousness, anxiety, melancholy, aggravation, and helplessness was evaluated using these six questions, and a mean individual score was computed for each measure using all of the items together. Cronbach’s alpha values of 0.8 or higher are typically recognized for five-item measures in fundamental research.^[33] In this study, the Cronbach’s alpha values for somatic symptoms were 0.59, 0.69, 0.81, and 0.75 at baseline, 6 months, 12 months, and 24 months, respectively. At the same time points, the values obtained for emotional distress were 0.69, 0.68, 0.79, and 0.78 respectively.

A series of different factor analyses (principal axis factoring with eigenvalues 1.00) using all six items at each time point revealed that all six items were consistently loaded onto a single factor. These studies looked at both somatic symptoms and emotional distress. In addition, scores on the Stress in America Survey were positively linked ($r=0.50$ or above) with both measures. Children Inventory 34 scores during the first follow-up, as well as those at the post-intervention follow-up, were within acceptable ranges, showing that the criterion validity was intact.

Stat Analysis

For each of these studies, we used version 25.0 of IBM’s Statistical Package for the Social Sciences. Every statistically significant test was performed using a two-tailed, 0.05 threshold of significance. The effectiveness of the intervention was determined by calculating the difference in scores between the first baseline and subsequent follow-ups. Independent-samples t-test was run to compare the control group with the intervention group, with these shifts in scores serving as the dependent variables. Effect sizes were calculated by dividing the group differences (as calculated from the change scores) by their respective standard deviations. 80% of research participants completed all sections of the questionnaire assessing physical symptoms and mental discomfort. The data coverage for each pair of main variables was utilized to determine the shifts in the dependent variables. From the onset, the strength of the association between emotional distress and physical symptoms was estimated using Pearson’s correlation.

RESULTS

Table 1 outlines the participants’ baseline characteristics, which include features of their personal, familial, and cultural backgrounds in addition to their prior experience with various types of physical exercise. In the power analysis, we used the assumption that there would be a difference of 25% between the groups in terms of

a decrease in somatic symptoms, with a significance level of 5% and 80% power. As a result, we required 50 participants in each group, for a total of 100 people. Out of the total participants, fifty were randomly assigned to the dance intervention group, while the remaining fifty were assigned to the control group. According to the data in Table 1, all participants were female. The majority of the females were between the ages of 14 and 16, with 44% in the intervention group and 40% in the control group respectively. This was followed by a rate of 42% in the age group for 16–18 year-olds and 38% in the age group for 12–14 year olds. In the age group of 10–12 year

olds, only 4% of girls were present. 78% of boys and 70% of girls engage in physical activity (Fig 1). For those participating in the dancing intervention and those serving as the control, respectively. At the beginning of the study, the total mean value for somatic symptoms was 3.25 ± 1.25 , and the mean value for emotional distress was 3.89 ± 1.33 . The emotional distress and somatic symptoms connection has a Pearson value of $r=0.84$, which indicates a strong relationship between the two. There were no changes seen at the beginning between the intervention group and the control group in terms of either emotional or physical discomfort or symptoms.

Table 1. Basic parameter

	Intervention group	Control group	P value
Gender			
Girls	50	50	0.25
Age			
10-12	2	2	0.69
12-14	5	9	
14-16	22	20	
16-18	21	19	
Area			
Rural	10	8	0.14
Urban	40	42	
Physical active For dance			
Yes	39	35	0.33
No	11	15	
Father on sick leave	5	6	0.45
Mother on sick leave	3	2	0.52
Health			
Good	4	40	0.29
Poor	40	6	
Very poor	6	4	

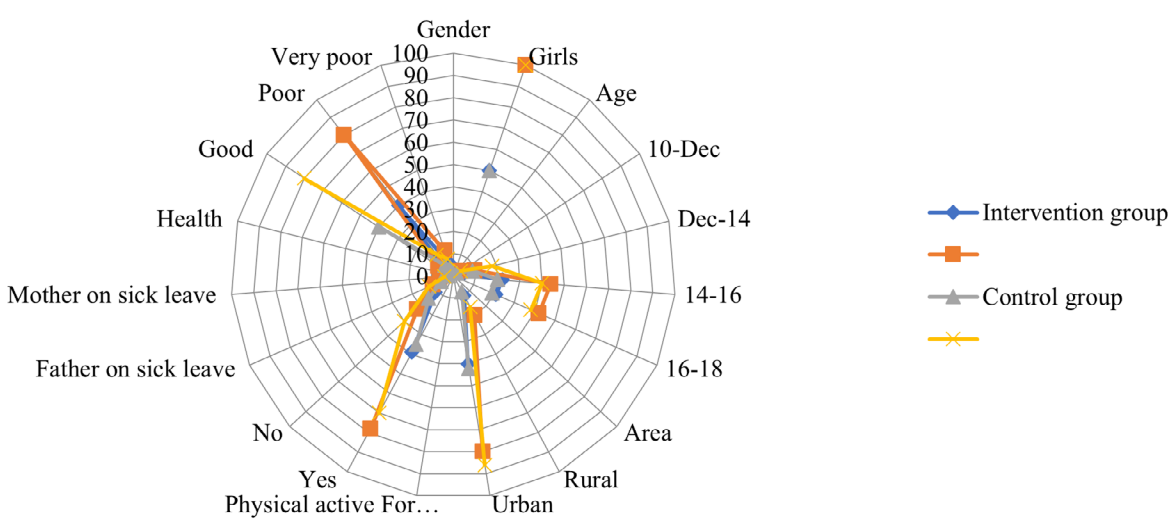


Figure 1. Basic parameter

Table 2 displays the mean number of somatic symptoms experienced by those in the intervention group as well as those in the control group from the beginning of the study to the end. Table 2 displays the mean values (together with the standard deviations) for somatic symptoms at each of the four time periods. In addition,

the effects of the intervention on somatic symptoms were evaluated by comparing the change ratings of each group before and after the intervention (Fig 2). There was no statistically significant difference between the groups after the initial follow-up period of six months (p-value 0.27). However, a significant impact was seen at the

post-intervention follow-up examination after a period of twelve months; participants in the intervention group reported a higher improvement in their symptoms than those in the control group (P 0.03). During the extended

follow-up period of twenty-four months, there was no discernible difference in the score change between the two groups. A difference of 0.27 points was found in the mean score change.

Table 2. Mean of Somatic symptoms in the intervention group and the control group from baseline to 24 months

Dance intervention	Mean ± Sd	SD	Mean changes
Somatic symptoms			
Base line	3.25	1.25	00
After 6 Months	2.98	1.01	0.27
After 12 Months	2.45	0.87	0.53
After 24 Months	2.61	0.97	0.16
Control groups			
Base line	3.25	1.25	00
After 6 Months	3.12	1.11	0.03
After 12 Months	2.55	0.98	0.57
After 24 Months	2.74	0.88	0.19

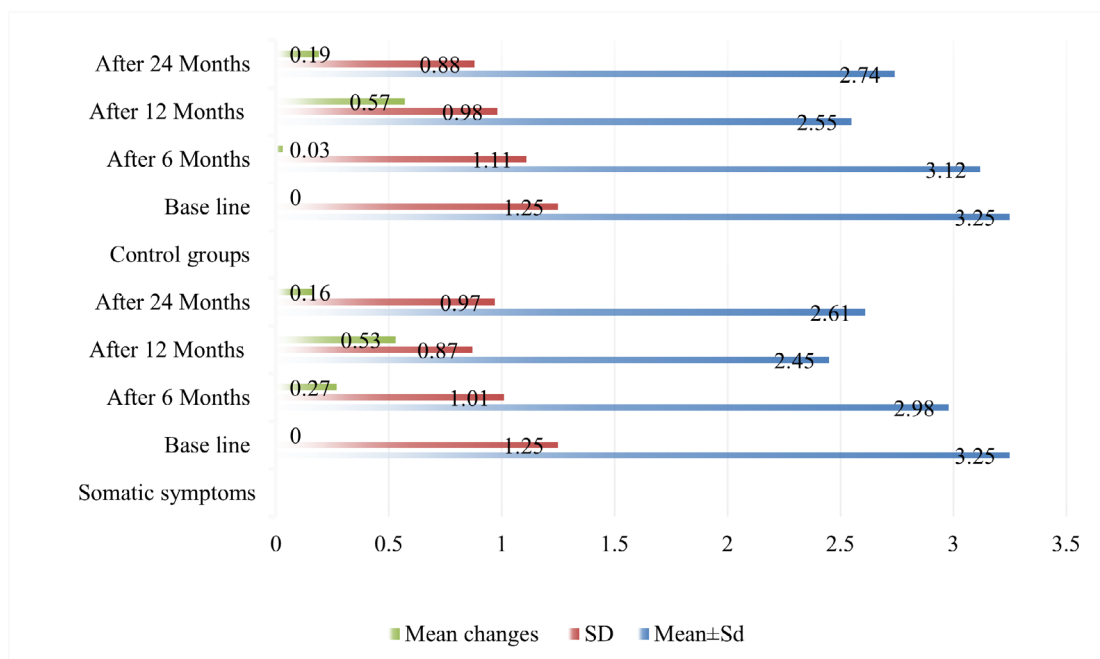


Figure 2. Mean of Somatic symptoms in the intervention group and the control group.

A difference of 0.36 points was found in the mean score change. The average levels of emotional discomfort experienced at each of the four time periods are shown in Table 3 and Fig 3. We then determined whether there was a significant difference in the score change between the groups at each time point. There was not a significant difference in the amount of emotional discomfort identified between the groups during the initial follow-up period of six months. However, during the post-intervention follow-up after twelve months, there was a substantial impact; the intervention group had a higher decrease in emotional distress than the control group. Nevertheless, during the extended follow-up period of twenty-four months, there was not a significant difference in the score change between the groups. The results showed that the hypothesis was correct: there was a significant difference

between the groups in terms of both outcomes measured after the intervention was completed (Table 4).

Table 3. Mean of Emotional distress in the intervention group and the control group from baseline to 24 months

Dance intervention	Mean ± Sd	SD	Mean changes
Emotional distress			
Base line	3.89	1.33	00
After 6 Months	3.25	1.11	0.64
After 12 Months	2.97	0.91	0.28
After 24 Months	3.01	0.88	0.04
Control groups			
Base line	3.89	1.33	00
After 6 Months	3.61	1.21	0.28
After 12 Months	3.11	0.88	0.50
After 24 Months	3.24	0.91	0.13

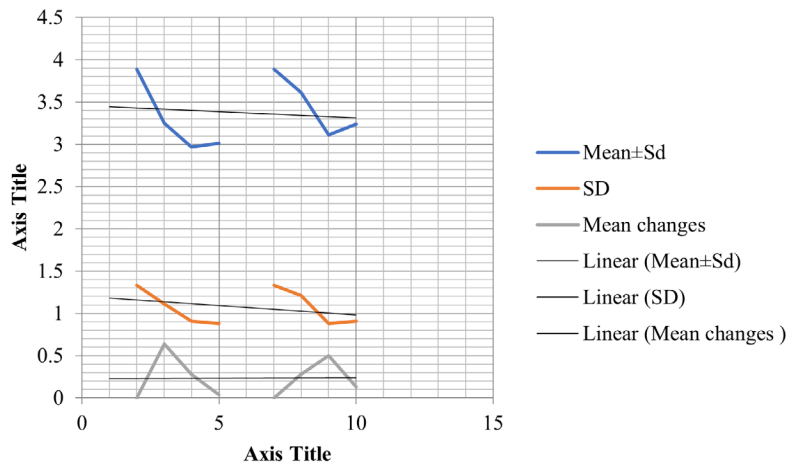


Figure 3. Mean of Emotional distress in intervention group and control group

Table 4. Correlation between somatic and Emotional distress in intervention groups

Dance intervention	95% CI	P value
Intervention group		
After 6 Months	0.33 -0.17-0.42	0.36
After 12 Months	0.45 0.11-0.59	0.01
After 24 Months	0.29 -0.35to 0.49	0.41
Control groups		
After 6 Months	0.36 -0.22 to 0.48	0.22
After 12 Months	0.58 0.12 to 0.77	0.02
After 24 Months	0.67 -0.21 to 0.81	0.33

The somatic symptoms, both before and after management, are presented in Table 5 and Fig 4. Aching shoulders 49 (98%) and 5 (10%), Vertigo 47 (94%) and

7 (14%), Tiredness 48 (96%) and 7 (14%), Headache 50 (100%) and 8 (16%), Stomachache 48 (96%) and 6 (12%), Vertigo 47 (94%) and 7 (14%), Tiredness 48 (96%) and 7 (14%), and Backache 45 (90%) and 4 (8%) in the intervention group and the control group, respectively.

Table 5. Somatic symptoms before and after intervention

Somatic symptoms	Before intervention	%	After intervention	%	P value
Headache	50	100	8	16	0.24
Stomachache	48	96	6	12	0.36
Vertigo	47	94	7	14	0.22
Tiredness	48	96	7	14	0.14
Aching shoulders	49	98	5	10	0.11
Backache	45	90	4	8	0.21

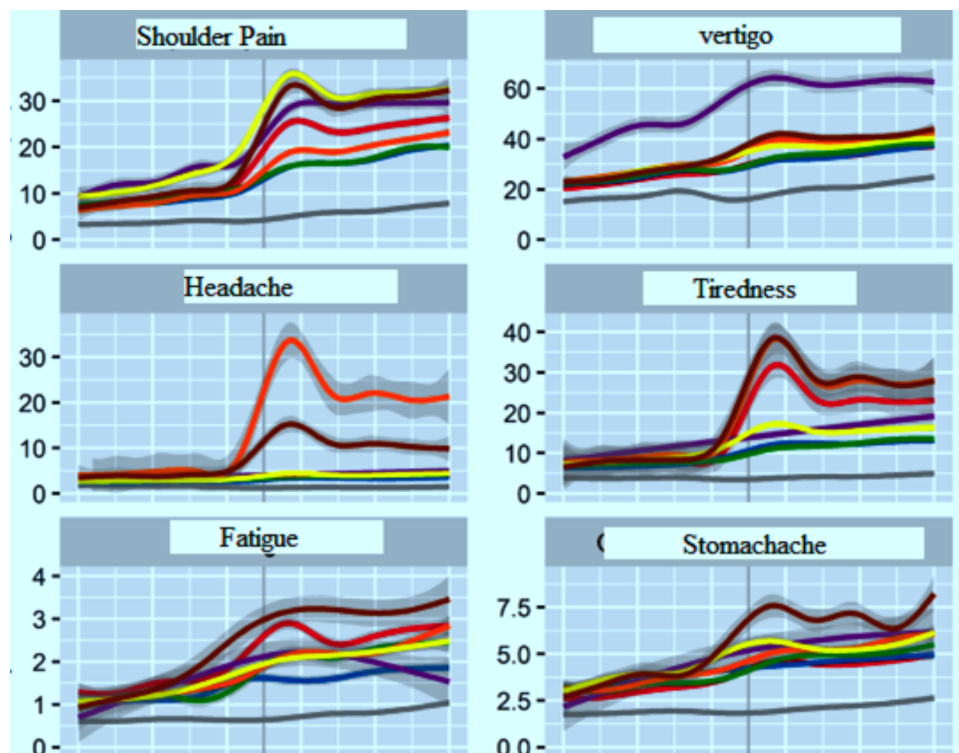


Figure 4. Somatic symptoms before and after intervention

The results of Table 6 and Fig 5 show that the levels of emotional distress before and after the intervention were as follows: stress 47 (94%) and 6 (12%), nervousness 45

(90%) and 5 (12%), anxiety 49 (98%) and 6 (12%), sadness 46 (92%) and 5 (12%), irritation 44 (88%) and 4 (8%), and powerlessness 47 (94%) and 4 (8%).

Table 6. Emotional distress before and after intervention

Emotional distress	Before intervention	%	After intervention	%	P value
Stress	47	94	6	12	0.12
Nervousness	45	90	5	10	0.26
Anxiety	49	98	6	12	0.27
Sadness	46	92	5	10	0.23
Irritation	44	88	4	8	0.31
Powerlessness	47	94	4	8	0.17

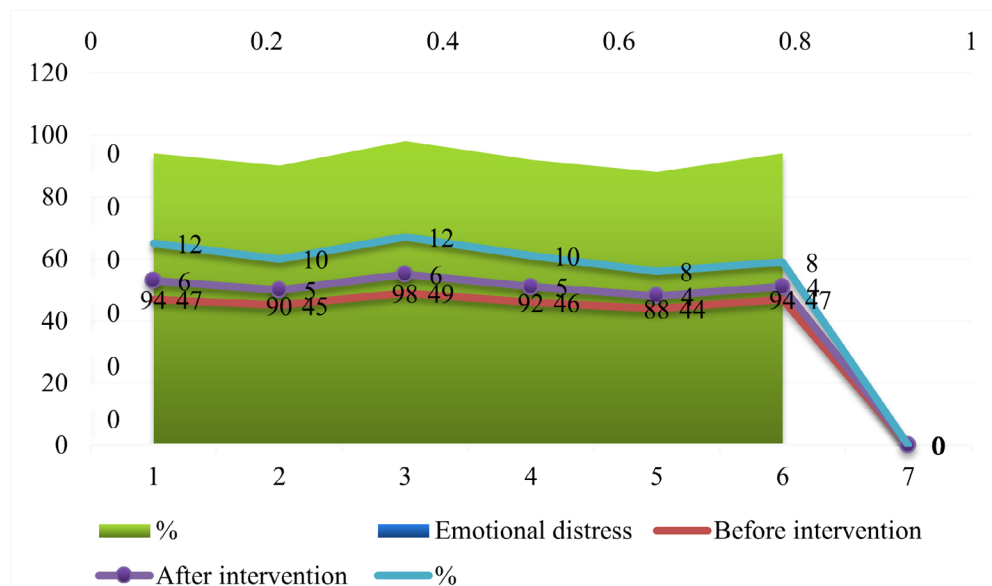


Figure 5. Emotional distress before and after intervention

DISCUSSION

The findings of this randomized controlled study suggested that an eight-month dance intervention significantly reduced the somatic symptoms and mental distress in adolescent girls following the intervention, in comparison with the school health services alone. However, when the data were analyzed over a longer period of time, the differences between the groups began to disappear. The reason for this is not known; however, it is likely that for the participants to continue reaping the advantages of the intervention, they needed to continue doing it in the same way that they had been doing it before. It is important to notice that the physical symptoms and the emotional distress symptoms followed the same pattern, in that both exhibited the biggest between-group difference at the post-intervention follow-up evaluation. This finding raises some questions about the reliability of the study. The reason for this consistency is not entirely clear to me. However, the findings of a recent research carried out by Alfvén *et al.*^[34] have shown that negative stress had a role in the development of chronic pain in young people. In addition, the authors state that understanding stress and its somatic consequences is a prerequisite for

developing effective therapeutic strategies. According to them, this is because comprehending stress and its bodily effects is analogous to understanding a sickness and the symptoms it produces.^[34]

This study is the first one that we are aware of that analyzes the effect that taking part in a dance intervention on stress-related symptoms experienced by adolescent girls participating in the study. A similar favourable trend in stress-related or psychosomatic symptom reduction in adolescent girls was identified by Strömbäck *et al.*^[35], who studied an eight-session stress management course that included body-based exercises. This study was conducted by Strömbäck and colleagues. This tendency was the same as the one that was reported by the authors of the research that preceded this one. While the study did not involve a control group, the findings showed that participants had significant reductions in levels of internalized anxiety, depression, and somatic symptoms after participating in the intervention. The authors concluded that empowering activities could include those that concentrate on the body. After finishing the course, the participants reported having an enhanced capacity to acquire vitality and presence, as well as an increased ability to listen to the messages their

bodies were sending them. This might be the result of an increase in both physical awareness and social support, both of which could potentially contribute to explaining the benefits that were identified in the present research. The participants expressed that they had a good time dancing and that they believed that the intervention provided psychological and social advantages, improved their perceived health and well-being, and led to better levels of energy. The findings of this research are consistent with qualitative data obtained from the Bristol Girls Dancing Project, which was an intervention in the form of an after-school dance class geared for seventh-grade girls (aged 11–12 years). When taken into consideration as a whole, this may help to understand the health consequences brought about as a result of the intervention.

Due to the fact that not everyone is capable of dancing, it is important to investigate other types of physical exercise in addition to dancing to achieve the goal of improving one's mental health. Activities such as team sports, cycling,^[13] cross fit, foot- ball,^[15] aerobic and gym activities, and mindful exercises such as yoga or tai chi^[13,15] may all help in lessening the burden on an individual's mental health. However, to achieve enjoyment, which tends to result in higher adherence to physical activities^[27,29], it is necessary to give a sort of physical exercise that aligns with the interests of the selected target group, as this is the only way to accomplish the desired effect. Engaging in pleasurable activities, often results in increased adherence to such activities. It is reasonable to assume that teenage females will find dance appealing.^[17] The motivational self-determination theory (MSDT) is commonly used by researchers and teachers to guide the delivery of organized physical activity sessions.^[36] In the current study, the theory was used as a framework and approach for the involvement of dance instructors; however, it was not examined whether or how it influenced the results.^[37,38]

One of the hypotheses that could serve to explain the reduction in stress-related symptoms found in this specific study is that the intervention was carried out in a social situation. This hypotheses might help to explain the observed drop. Togetherness and a feeling of unity may provide significance and power to the lives of teenage females. Additionally, while addressing stress-related challenges, the idea of “not being alone” may serve as a form of relief. It has been shown that there is a beneficial association between teenagers' participation in team sports and their overall mental health.^[39]

The strengths of this study include a longitudinal randomized design, a prolonged intervention duration, long-term follow-up, and the uniqueness of the intervention type for a vulnerable target group. However, it is essential to acknowledge the many limitations that are present in the study. The fact that it is, for the most part, impossible to conduct exercise research using volunteers in a blinded fashion raises the possibility that this is one factor that contributes to bias. Participants who took part in the intervention might have reported higher positive values as a means of expressing gratitude to the research team

or trying to please the instructors. In addition, when evaluating the findings, we need to take into account the missing data for both outcomes. The percentage of missing data in the control group ranged from 4% to 20%, while the percentage of missing data in the intervention group was between 16% and 18%. Moreover, lack of internal consistency is another limitation placed on this study that needs to be addressed. To be more specific, the Cronbach's alpha score for the somatic symptom scale at baseline barely reached 0.71. We are unable to state with absolute certainty that somatic symptoms were recorded in accurately across all of the trials, as this measure exhibits a somewhat low level of internal consistency. Values of 0.6 and above are generally considered to be good indicators of good internal consistency in basic research.^[40]

Due to relatively low internal consistency for this measure, we cannot be certain that somatic symptoms were captured with consistency. When analyzing the results, a certain degree of caution is necessary owing to the risk that the predictor variable can either artificially inflate or artificially deflate the estimate. Depending on the scenario you choose, this could have a significant impact on the conclusions drawn from the study. It is also significant to note that participants were asked to submit information related to the period of time before the present research, which spanned from three months before the beginning of the investigation. Recall bias is always a potential threat to the internal validity of self-reported data on past experiences, and responses can be influenced by memory limitations.^[34-42] Despite the girls reporting no difficulties in completing the assessment, recall bias may have had an impact on the findings.

There is a need for additional research to be carried out with a variety of different target populations to validate the positive effects of this type of health-enhancing intervention in various settings. Initially, it is unknown if the type of intervention that is being given here is suitable for use with young men who have challenges that are associated with stress.

This is one of the hypotheses being explored in this article. In the years to come, having this hypothesis verified by research could provide a sense of direction for the development of programs that are aimed at people of both sexes as their target audience. Secondly, despite some evidence for the health effects of dance interventions in various age groups^[19,21], a recent systematic review^[15] concluded that due to the small number of studies, it was not possible to determine the effect of physical activity on the mental health of preschoolers and children. The conclusion reached despite of the fact that there is some evidence for the health effects of dance interventions in various age groups. This was because the evaluation did not have enough data to establish the impact that preschoolers' and children's physical exercise had on their mental health.^[43-47] Studies of treatments that are geared toward treating children who have problems associated with stress have the potential to expand the scope of the existing knowledge base. These studies could also investigate the possible benefits of early

participation in the such interventions. The positive findings of the present study may mbe applicable to a comparable group of preteen and adolescent girls who are experiencing stress-related disorders in a setting that is analogous to that of an after-school program. This is because the two groups have many similarities. However, because it necessitates enthusiastic school nurses who can recruit participants, a trained dance instructor, and a dance studio that is easily accessible and located within a reasonable distance from the school, the successful implementation of the intervention in other locations may be hindered by the constraints imposed by practical considerations. Specifically, the intervention requires a dance studio that is easily accessible and located within a reasonable distance from the school. In addition, although it was not an issue during the current research, the method of recruiting participants may be challenging because of the possibility that people who have problems related to stress may be stigmatized.

Although it is likely that members of this target demographic hold a variety of opinions concerning physical activity, the vast majority of the girls who participated in this study already had some level of experience in physical activity. It is possible that the inclusion criteria could be narrowed, and adolescents with stress-related disorders who are also physically inactive could be studied; this would be an exciting new angle for researchers to investigate in the future. It is not unusual for adolescent girls to seek the assistance from the school nurse for problems such as headaches, stomach pain, and social issues.^[43]

CONCLUSION

According to the findings of the current research, dance therapies can alleviate stress-related physical symptoms as well as mental discomfort in teenage females. However, the impact of the intervention was not sustained one year after the session had been completed, which suggests that participants need to continue frequent involvement in the intervention for the outcomes to be permanent. In order to further assess the efficacy of the intervention in a variety of contexts, more randomized trials are necessary.

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