

The Influence of Psychokinetic Therapy on Stress and Motor Performance in Young Dancers Aged 18 - 19 Years

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Abstract

Stress can be perceived in many forms by young people aged 18 - 19 who want to enter the field of professional dance and can have negative effects on their motor performance. We believe that introducing psychokinetic therapy in the specific training of young dancers can influence their perceived stress, self-confidence, including sports and artistic performance of young dancers. The research study was conducted on a small sample of female students, and the results showed that there is a direct relationship between stress and performance ($r = -0.629$; 0.007 ; <0.05), the lower the stress level, the higher the performance. A significant relationship between performance and self-confidence was also established ($r = 0.447$; 0.072 ; <0.05). This shows us that the higher the level of self-confidence, the better the performance. The study highlighted the role of psychokinetic therapy in reducing stress, increasing self-confidence, and optimizing the motor performance of young dancers aged 18 - 19.

Keywords

Stress, Psychokinetic Therapy, Relaxation, Breathing Exercise, Motor Performance

1. Introduction

Stress, defined as the nonspecific adaptive response to various external factors (Szabo et al., 2012) has become a widespread problem in contemporary culture, which can have negative effects on mental and physical health in all age groups (Prince et al., 2007; Geetanjali et al., 2023).

Stress disrupts homeostatic processes through a complex interaction between the hypothalamic-pituitary-adrenal (HPA) axis and the nervous and immune

systems (Russell & Lightman, 2019).

Common symptoms of chronic stress include increased anxiety, and the latter depends on higher levels of perceived stress and the number of stressful events (Buixassa et al., 2023). Stress also leads to sleep disturbances (Ding et al., 2023), digestive and immune problems, irritability, mood swings, reduced concentration, impaired memory, decreased performance (Talbot, 2007).

The life period 18 - 19 years represents a sensitive and dynamic period from the point of view of human development through the multitude and diversity of changes and challenges to which the body is exposed from a physical, mental, and social point of view (Viner et al., 2015). Young people frequently face various stressful situations. They are in a continuous adaptation to the environment in which they carry out all their daily activities to maintain the integrity of the body required by a series of stressors (Borcoși, 2017) and are forced to make choices related to their long-term future, which requires important decisions regarding their education and employment (Lindholdt et al., 2021).

The literature review highlights that young people complain of a high level of perception of stress related to the school and/or academic environment, which causes them to be more anxious. Anxiety is a normal response to stress, but prolonged exposure to stress can lead to the development of anxiety disorders (Mihăilescu & Matei, 2011) and aggressive behavior among young people (Olutunde, 2017).

During the COVID 19 pandemic, because of conducting the study program in online format, young people faced many tenses, confusing, stressful situations, with an impact on school achievements, on the assimilation and appropriation of the study program, on interpersonal relationships, a difficult situation that generated in young adolescents a high level of anxiety, manifested by states of anxiety (Chen et al., 2022).

Several studies have shown that anxiety and stress levels increased significantly during the COVID-19 pandemic, compared to the pre-pandemic period (Zhao et al., 2020, Wong et al., 2020, Haliwa et al., 2021, Pierce et al., 2020, Kwong et al., 2021, Daly et al., 2020).

Existing studies have shown an increase in stress caused by COVID-19 in very young adults (Nam Park et al., 2023), who are more vulnerable due to lack of ability to cope with stressors. Moreover, they obtained a series of information about COVID-19 from social networks, and this contradictory information, real, proliferated and easily produced stress, emotional distress (Gao et al., 2020, Chao et al., 2020) and depression. The incidence of depression increased from childhood to young age (Hankin & Griffith, 2023), with depression projected to be the highest risk of disability globally by 2030 (Egbert et al., 2023). More and more researchers are interested in an important concept in positive psychology of young people, namely their well-being (Dvorakova et al., 2017), the latter being an important factor contributing to both personal development (Shapiro et al., 2008) and school success (Sparkman et al., 2012).

For young people who want to enter the field of professional dance at the age of 18 - 19, stress can be perceived in many forms. Stress can lead to psychosomatic reactions (Insel & Roth, 2018), and these can also be observed in young dancers, especially before entering the stage or before exams or competitions, and usually manifests itself through sweating palms, accelerated pulse, stomach pain, hyperventilation, muscle tension.

One cause of stress in these young people can be competition and performance pressure, as young dancers may face fierce competition for training opportunities and professional commitments and may be overwhelmed by the uncertainty of their professional future (McCloughan et al., 2016). Existing studies state that the higher the level of competition, the higher the level of anxiety, and this is also due to the novelty they face and which young people do not yet know how to manage optimally in order to achieve the desired success (Monsma & Overby, 2004).

Moreover, at this stage of their lives, young dancers are forced to make decisions about choosing a school, an appropriate dance program that will give them the best chances of success in their careers. The desire of young people to achieve high standards in such a competitive field can be a source of stress and anxiety. Body image (...), performances, costumes, stage partner (Nicolescu, 2021) injuries can be important stressors in the life of a young dancer. Among the predisposing factors of injury in them we can mention permanent worries, interruption of training and recurring stressful events (Smith et al., 2008). Events in personal life can increase the stress level of young dancers and can have a negative impact on attention, concentration, self-assessment, exams, which can easily lead to decreased performance in school/academic/motor and professional activity.

Stress can lead to anxiety and depression, which can influence the occurrence of minor accidents even during specific training (Vasile, 2017), and the situation is even more serious, as injuries often require stopping daily studies and repetitions, which can lead to loss of physical shape, aspects that can greatly influence the psyche of a young dancer.

In the world of dance, it is sought not only to achieve physical performance and to find uniqueness in interpretation. This can be achieved by perfecting the dance technique, combined with the adolescent's ability to interpret, and finding ways to solve the problems they face, problems related to the volitional, motivational, attitudinal, and affective side (Schofield & Start, 2019). Under these circumstances, we can say that starting with this age group, each dancer can be regarded as a potential soloist. If the younger age groups aim to form the starting base by mandatory learning of elements related to classical dance technique, starting with this age individualized work is done, the teacher adapting to the personality of those he has in class. The problem he faces is how to maximize the performances of the future dancer, to obtain a high technical and interpretative level, which would manifest itself in a unique and at the same time superior value version (Ralea, 1957).

For young people aged 18 - 19, achieving professional success, motor performance requires confidence in their own forces, and the psychological game that the teacher leads with the future professional dancer is extremely important and represents the main means of stimulating performance and forming self-confidence (Holdevici, 2011).

The success in the dancer's activity is assessed according to the achievement of the objectives he achieves in the motor activity performed, but also according to the individual aspiration, motivation, and well-being of the young person. If he is stressed, does not show desire and will, the teacher cannot lead him to performance, no matter how much he gets involved.

In the context of the above, identifying and applying methods to combat the negative effects of stress that it has on human life, referring not only to the physical body, but also to the mind and soul (Vasile, 2016) are a necessity. Different societies around the world promote the implementation of stress management programs in different age groups, especially among children and adolescents (Alborzkouh et al., 2015).

Studies demonstrate that stress management techniques alter stress-related physiological reactions (Bryant, 2011) and help reduce both the physiological effects of stress and diminish cognitive deficit (Meritens & Fauquet-Alekhine, 2023).

The literature confirms benefits of exercise such as: optimizing well-being (Contreras-Osorio et al., 2022), improving stress response (Warburton et al., 2006), reducing depressive symptoms (Cooney et al., 2013), improving short-term memory (Buschert et al., 2019), stimulating cognitive function (Penedo & Dahn, 2005), and boosting cognitive performance (Malchow et al., 2013) and prefrontal blood flow (Colcombe et al., 2004) with direct effects on executive function in humans (Hillman et al., 2008). Other studies have shown that exercise improves mood, lowers cortisol, releases endorphins, and diminishes anxiety and depression (Harorani et al., 2020), while relaxation techniques such as progressive muscle relaxation and deep breathing exercises can optimize physical and mental health (Aswitami et al., 2021).

Like exercise, deep breathing that Orientals say can be abdominal breathing (Consolo et al., 2008) has positive effects on various factors such as stress, anxiety (Pardede et al., 2020), attention and negative affects (Warsono, 2020).

The induction of positive emotions, such as joy or ecstasy, can have a good influence on the dancers' performances (Cerin, 2003; Uphill et al., 2014), while the onset of negativity undoubtedly leads to the installation of a state of deconcentration, lack of motivation (Martinent & Ferrand, 2009) and ultimately leads to depression and renunciation. School and motor performance can be improved through positive self-influence, young dancers using their imagination. If before the competition/audition they form positive mental images (perfectly executed movements, moments with the announcement of winning the competition/audition), young dancers will get a release of anxiety, an increase in confidence

in their own forces and obviously their performance will be much better (Monsma & Overby, 2004).

Given that stress, observed in young dancers aged 18 - 19, negatively influences well-being, school and motor performance, self-assessment of technical and interpretative skills, all these arguments support the need to develop programs that include techniques and methods for optimizing self-confidence and improving motor and artistic performance.

In this regard, we aim to establish to what extent the inclusion in the specific training of young dancers, psychokinetic therapy that combines psychological principles with physical exercises can influence their perceived stress, self-confidence, including sports and artistic performance of young dancers aged 18 - 19.

2. Methodology

Against the background of an extremely low number of papers addressing this topic, the lack of adequate training of dance teachers has been observed in practice, allowing them to identify the psychological problems of those they train and find the most appropriate solutions to the situations they face, all the more so as the stress of multiple causes has increased following the pandemic period with COVID-19.

Eliminating the dancer's stress brings clarity in interpretation and extra expressiveness at the motor level that will amplify the clarity of transmission of the artistic message.

Thus, the purpose of the study was to identify and apply those means that can influence stress, self-confidence, including motor performance of young dancers aged 18 - 19, means belonging to both psychology and kinesiotherapy.

2.1. Hypothesis

The hypotheses of the research are:

H1. Including a psychokinetic therapy program in the training of future dancers can help reduce stress and increase their self-confidence.

H2. The application of specific psychokinetic therapy techniques for stress management can improve the motor performance of young dancers aged 18 - 19 years.

2.2. Research Participants

To research the hypotheses of the paper, we analyzed a group of 17 female subjects, graduates of the 2019-2023 promotion, fourth-year students at the Floria Capsali Choreography High School in Bucharest, Romania. The subjects of this group ranged in age from 18 to 19 and specialized in contemporary dance technique. We mention that the students who reached the fourth year are those who, during the COVID-19 pandemic, for two and a half years carried out almost their entire learning activity in the online system.

2.3. Research Method

The trainings of students from vocational high schools, with choreographic profile, include an hour and a half of dance technique (classical or contemporary) that are done in the morning starting at 8.00, then in the afternoon they have allocated 3 hours of diverse training (repertoire, ensemble, duet, other dance techniques). The subjects of the 2019-2023 promotion benefited at the end of classes, in the afternoon, from a psychokinetic therapy program in the regime of 3 sessions per week.

2.3.1. Psychokinetic Therapy Program

Controlled breathing techniques, along with relaxation techniques, represent the basic means of psychokinetic therapy (Buiac, 2013).

The psychokinetic therapy program included:

- Introductory exercises performed from orthostatism that consisted of active movements of the trunk and upper limbs, dynamic stretching exercises, trying to easily overcome the maximum possible amplitude of body segments, necessary for activating muscles and joints involved in respiratory mechanics,
- Analytical mobilization from the upper trunk was followed by pelvic movements,
- Exercises to sensitize breathing through the nose, to learn correct breathing, either in slow, continuous spirit, as when I sniff the fragrance of a flower, then exhale, or inhale intermittently, followed by exhalation,
- Relaxation techniques based on breathing exercises that aim to raise awareness:

1) Abdominal breathing (deep, diaphragmatic) from dorsal decubitus with knees flexed.

This type of breathing ensures aeration in the lower areas of the lung: in inhalation, air is directed to the pulmonary base by bulging the abdomen, while on the exhalation there is contraction of the abdomen, traction of the abdominal wall towards the spine.

To become aware of breathing, one hand can be placed on the epigastrium and the other on the sternum (Sbenghe, 1983), or you can apply the middle fingers of both hands on the abdomen so that they touch each other (Selby, 2003). During the 4-second inhalation, they will move away, and during the 6 - 8 second inhale, the mediums return to their original position.

2) Nerve strengthening breathing involves an energetic evacuation of air, followed by slow inhalation in conjunction with raising the arms slowly forward to horizontal, with palms facing up, fingers gradually flex into fists and with this begins air retention for 8 - 12 seconds, and during breath retention hands go to shoulders 3 times, Then the arms and head bend forward when the exhalation begins, followed by a slow inhalation.

Nerve-strengthening breathing has a special role in strengthening the nervous system, which is why it is recommended that dancers perform it before more important competitions. It was introduced at this time to quickly restore the state of

alertness to achieve a dance technique with a role in increasing self-confidence.

- Contact Improvisation dance technique works with the fundamental laws of physics (related to momentum, gravity, inertia, friction) and biomechanics, obtaining the subtle play that occurs between balance and imbalance during movements, confidence in oneself and in work partners (Hennessy, 2017). This technique develops awareness of the body's center of gravity and effective work with it, it also develops the ability to take a partner's weight from support or by lifting. This technique invented by Steve Paxton in 1970, which starts and is based on improvisation, represents, as he said: communication between two moving bodies (Dey & Sarco-Thomas, 2014).

Contact Improvisation uses breathing techniques that help the dancer in the correct and efficient dosing of oxygen during work and works on the principles of coordinating breathing with movement in aikido (Shioda, 2013). Therefore, on the inhale, the movements of lifting and/or taking over the weight of the partner are performed, on the exhalation the movements of descent are performed, and on-air retention the porting of the partner is performed. The technique uses the alternation between contraction and relaxation, achieving a continuous change of body position by seeking the placement of the center of gravity efficiently involving in the realization of movements a constantly distributed energy, appropriate to the type of movement (Cohen & Matheson, 1992).

The program introduced in the present study included the basic elements that are learned to approach the improvisations specific to this movement technique. These elements were:

1) Rolling on floor—solo exercise with 3 variations:

- Running on the ground in an upward direction where the engine of motion is the right arm, when running on the ground is 360° and running to the left.
- Running on the ground downwards where the engine of motion is the right foot, when running on the ground is 360° and running to the left.
- Rolling arc in which the engine of motion is the pelvis and abdomen initiating movement during 360° turning, the upper and lower limbs being in extension and remaining behind the trunk so that the running body acquires the appearance of a rolling spring.

The starting position is from lying down dorsally with the whole body relaxed on the floor, including the upper and lower limbs. From this position, the floor roll is performed started depending on the type of running performed. It is worth mentioning that during the movement the head and neck must remain relaxed. Inspiration is made on the moment of impulse, exhalation on rolling the body on the floor.

Dosing of movements: 8 repetitions × 4 musical strokes (with slow tempo between 40 - 66 beats/minute, ie between largo and larghetto) (Iosif & Vartolomei, 1979), for each of the 3 forms of Rolling on floor, with the mention that upward running can be combined with downward running, by alternating execution.

2) Back-to-back and roll it is a movement executed in partners, which starts from orthostatism with the two partners located back-to-back (the contact being at the level of the entire back, respectively shoulders and pelvis). From here, partners cede body weight to each other by symmetrically moving their legs forward simultaneously with pushing back-to-back, constantly seeking the point of balance of their bodies, and breathing steadily to achieve coordination of breathing in partnership. The pushing force should be equal, and constant and simultaneous breathing. Lower into sitting on the floor with knees flexed, feet remaining fixed to the floor from the beginning to the end of the descent, with the execution of a total exhalation of air. From here one partner lies on the floor on the middle side of the body, while the other leans over him relaxing and yielding all his weight, the movement being made on the moment of inhalation. The one who is on the floor performs a 360° roll, pulling the partner's body and engaging him in movement on the exhale. When the ported pelvis is raised to the maximum point, he executes a roll back over the partner, which rising into the seat favors reaching back-to-back. From here the partners get up with inspiration (which should last if the lift takes), retracing the route they left, to resume the movement by changing roles.

Dosing of movements: 8 reps (4 for one partner and 4 for the other) × 16 musical strokes.

3) Low table it is a movement executed in partners, in which the two start from different positions: The one who takes the weight of the partner, making low table, sits in support on the upper limbs (located in extension, perpendicular to the floor, with the support on the hands that are facing forward) and on the knees located on the floor, with a small distance between them. The ported one starts from orthostatism.

The ported one runs on the back of the partner, as if running on the floor, leaving with inhale on the sitting and exhale on the roll. The hands and feet are relaxed, and after rolling the muscles are activated and tense with a deep inhale, which helps to change roles more easily; the change is achieved through a slow backward with completion in support on hands and knees (low table).

Dosing of movements: 8 reps (4 for one partner and 4 for the other) × 16 musical strokes.

4) High table it's a similar move to low table, except that the weight-bearing partner starts from standing upright. Thus: The one who makes the base, respectively the high table, bends forward with the body at 90° with inspiration, keeping the legs stretched in support on the entire sole and, to have greater stability, the hands rest on the thighs above the knees. The wearer lies on the back of the partner, taking care to place the center of gravity of his body on the back of the partner, making an inhale, then totally relaxing on his back with the exhalation. From here, a roll is made using the impetus given by the arms and legs. The rolling impulse should be light with constant movement that does not create discomfort to the partner.

Dosage of movements: 4 reps (2 for one partner and 2 for the other) \times 16 musical strokes.

5) Hip-lift standing opposite ways.

The two partners start from orthostatism, side by side, having contact with the middle part of the body, being oriented in opposition (one stands facing each other, the other with his back to point 1 of the room) (Vaganova, 2017). The actual movement will begin when the two partners begin to feel each other and have regulated their breathing, so they will coordinate more easily. The one who makes the base by flexing the knees slides down the middle of the partner's body, placing his center of gravity below that of the partner with the inhalation. He helps himself by the hand when he lifts his partner on his hip. The ported one allows himself to be lifted and, sliding on his partner's back, passes from side to side, performing an entire breathing cycle (inhale-exhale). The one that is the base exhales on placing the partner with his feet on the floor, respectively, when releasing from his weight.

Dosing of movements: 16 reps (8 for one partner and 8 for the other) \times 4 musical strokes.

- Jacobson technique (adapted short version): clench your fists hard for 5 seconds, then relax, repeat 5 - 6 times to release any accumulated tension.
- The guided meditation was performed from decubitus and/or sitting, subjects imagined a relaxing scene from their own life experience, paying attention to breathing, inhaling through the nose, and exhaling through the mouth. This exercise can block out negative thoughts and cause your body to release tension. Before starting meditation, it was recommended to imitate several times the yawning gesture that is attributed a special role in relaxation and anxiety discharge (Newberg & Waldman, 2009).
- The HA breathing exercise consists of raising the arms slowly up on the inhale, holding the breath for a few seconds, then the torso tilts sharply forward, letting the arms fall, exhaling through the mouth with the utterance of the syllable "HA".

This is followed by straightening the torso, accompanied by a slow inhalation simultaneously with raising the arms above the head, after which it is lowered with the slow exhalation performed through the nose.

"HA" breathing ensures better oxygenation of the blood and complete cleansing of the airways, useful also because most training took place in closed rooms.

- Breathing exercises with self-suggestive formulas (Bojor, 2006) in order to reduce stress and increase self-confidence, for better concentration and to successfully cope with exams, competitions: on inspire, the formulas used were: I compete with all forces, fear leaves me, I focus on the problem to be solved, and on exhaling the self-suggestive formulas were: I have relaxed body control, I am brave, I am relaxed and peaceful.

In the case of young dancers, we intended suggestive formulas to optimize behavior, to integrate adequately into activity cycles, not to be too long, to be

positive, to be plastic, to have the force to impress the subject's psyche, to be realistic, convincing, individualized, to be rhythmic, following respiratory cycles.

- Breathing exercises with oral expression of sounds such as vowels A, E, I, O, to achieve a good mood (Stefancu, 2012).

2.3.2. Tests Applied

The subjects of this group were evaluated at the beginning of the fourth year and at the end of this last year of high school, before the baccalaureate exam.

To monitor and objectify the effects of applying the psychokinetic therapy program to young dancers aged 18 - 19, the following tests were used:

- *The Perceived Stress Scale* test that obtained the stress level of the subjects during the two moments of the assessment.

The test contains a questionnaire consisting of 10 closed questions, for each question there is the possibility of choosing only one answer. The answers are quantified with the same alternatives, so subjects could opt for: never, almost never, sometimes, quite often, very often. Each rating was scored using a scale with digits from 0 to 4. The final score was obtained by summing questions 1, 2, 3, 6, 9, 10 and reversing the score for questions 4, 5, 7, 8, then making the sum again.

The score obtained in the end by each subject was interpreted according to three levels, namely: 0 - 13 → low stress level; 14 - 26 → moderate stress; 27 - 40 → high level of stress. For each answer, 20 seconds of thought time were given, to get a prompt answer and not to give him time to elaborate answers that would mislead the evaluators.

- *The Self-confidence test* consisted of a questionnaire represented by a set of 15 closed questions, each question having 4 answer options, from which the test subjects could choose a single answer option, based on which a score was established for each subject. The score was interpreted based on a table with data previously made and interpreted by psychologists Gheorghe Arădăvoaice and Ștefan Popescu (Zlate, 2015), which was corroborated, in turn, with the Perceived Stress Scale test, similar in structure and method of evaluation, but also with our observations and those of the teachers in the school, who taught in the respective classes. The observations on the subjects' behavior were recorded together with the specialized teachers during the specialized classes and noted in their evaluation sheets. To evaluate the answers in the test, a grid was made in which each answer variant corresponds to several points, using a value scale from 1 to 6.

The score obtained in the end by each subject was interpreted according to 3 established levels, namely: below 32 points we consider a low level of self-confidence, between 32 and 44 points an average level of self-confidence, and over 44 points, the test indicates high self-confidence.

To solve the test, each subject was given a pen and a paper on which to write down the answers, so that none of the subjects knew the answers of the other test subjects. This will make them not let themselves be influenced in the answers

they give and therefore obtain an objective evaluation (Arădăvoaice & Popescu, 1996). The duration during which subjects must write down answers should not exceed 30 seconds per question.

- *The Performance test* that evaluated the mobilization capacity of future dancers, their desire to overcome their own limits, but also their resistance to stress, by the latter meaning maintaining control and psychic balance in conditions of overload (thus assessing the psychological and moral strength of the subjects).

In this regard, subjects were asked to perform a pirouette with a turn of 1080°, with contraction of the body, in demi plié, with support on the front of the foot (end of metatarsals and phalanxes), with superficial lifting of the ankle from ground level (without demi pointe). They were given a limited time frame of 2 minutes to meet the requirement. This time frame was chosen to have a medium to high intensity of effort that falls within the lactic acid anaerobic effort zone, since this is the specific effort of adolescents preparing to become dancers (in dance a variation lasts, on average, between one and a half and two minutes). Anaerobic lactic acid effort depends on the body's energy resources (the form of phosphates, liver and blood glycogen, and triglyceride molecules), enzymatic activity, and hormonal regulatory mechanisms (Văjială, 2007).

The weight of the test also comes from the fact that pirouettes themselves are a complex technical element that requires coordination of movement in dynamic equilibrium. To maintain balance during turning, it is technically mandatory to align the body segments so that the projection of the body's center of gravity falls on the supporting surface (Legg, 2011). To keep the body in balance, it is also important that the centripetal force is equal and opposite to the centrifugal force, so that the moment of forces equals zero (Săraru, 2021). At the same time, it is important to have two traction forces: an ascending one (raising the body) and a descending one (pressure of the body on the support surface).

The test was filmed to objectively analyze the evolution of the subjects.

The Performance test also looked at the subjects' level of self-knowledge and self-assessment. Thus, at the end of the test, subjects were asked to evaluate their own execution, telling the evaluators how many successful executions they thought they had had.

- *The self-assessment of performance* was carried out using an evaluation scale with a score from 4 to 1, in which: for a correct evaluation of the execution, the maximum score (4 points) was awarded, for the difference of one evaluation of the execution were awarded 3 points, for the difference of two moves were awarded 2 points, and for a difference of 3 movements 1 point was awarded.

Data was collected and analyzed using JASP Software 0.18.3, 2024, and for coherent interpretation of data, comparison of values obtained in the two evaluations and verification of hypotheses of the paper, statistical paired samples t-test, t-Student test and Wilcoxon test were used.

3. Results

The results obtained in the Perceived Stress Scale test are presented in **Table 1**.

Both the t-Student test and the Wilcoxon test show significant differences between the two measurements, initial and final, very small p -values (<0.001) show that the observed differences are not the result by chance.

Moreover, the effect size in both tests (1777 in the T-test, 1000 in the Wilcoxon Test) and a z -score of 3621 indicates a statistically significant difference in the Perceived Stress Scale parameter.

Table 2 shows the results of the Self-confidence test.

After checking the parameter Self-confidence test using the nonparametric Wilcoxon test ($Z = -2.391$, p -value: $0.009 < 0.05$, Effect Size: -0.660) and the Student Test (p -value: 0.005 , Effect Size: -0.702) resulted that there are significant differences between the initial and final measurement, negative values of effect size for both tests, indicating a smaller difference between the initial and final measurements.

All the values of the statistical indicators used allow us to judge that the H1 hypothesis is accepted.

In **Table 3**, the statistical data presented are the results of two different tests carried out to measure motor performance and correct initial and final execution.

Table 1. Evolution of perceived stress scale test.

Measure 1	Measure 2	Test	Statistic	z	df	p	VS-MPR	Effect Size	SE Effect Size
Initial	Final	Student	7.328		16	<0.001	31012.207	1.777	0.384
		Wilcoxon	153.000	3.621		<0.001	263.202	1.000	0.269

Table 2. Evolution of Self-confidence test.

Measure 1	Measure 2	Test	Statistic	z	df	p	Effect Size	SE Effect Size
Initial	Final	Student	-2.894		16	0.005	-0.702	0.381
		Wilcoxon	26.000	-2.391		0.009	-0.660	0.269

Table 3. Evolution of motor performance.

Measure 1	Measure 2	Test	Statistic	z	df	p	Effect Size	SE Effect Size
Initial Performance	Final Performance	Student	-3.614		16	0.001	-0.877	0.368
		Wilcoxon	3.000	-2.824		0.003	-0.923	0.316
Initial Correct execution	Final Correct execution	Student	-3.054		16	0.004	-0.741	0.276
		Wilcoxon	3.500	-2.446		0.007	-0.873	0.342

The statistical verification of the motor performance parameter included the evaluation of the number of pirouettes performed and the number of correct executions of those performed.

Regarding the number of pirouettes performed, the Student Test ($t: -3.614, p = 0.001 < 0.05$, Effect Size: -0.877) indicates that there is a significant difference between initial and final performance, and the Wilcoxon Test (Test Statistic: 3,000, p -value = $0.003 < 0.05$, Effect Size: -0.923) confirms the results of the Student Test.

Regarding the number of pirouettes executed correctly, the results from the Student Test ($t: -3.054, p$ -value = $0.004 < 0.05$, Effect Size: -0.741 .) indicate a significant difference between the initial and final correct execution, while the Wilcoxon Test (Wilcoxon Test Statistics: 3500, p -value = $0.007 < 0.05$, Effect Size: -0.873) confirm the significant difference between the initial and final correct execution.

In conclusion, both tests show that there is a direct link, there are significant differences between the performance of performing pirouettes and their correct initial and final execution, suggestive of an improvement in motor performance.

In **Table 4** analysing the statistical difference between baseline and final self-assessment of performance, there is no statistically significant difference between initial and final measurements, regardless of the type of test used, since the p -values are higher than the usual materiality level of 0.05. Also, the Effect Size and the standard SE Effect Size error are close to zero, indicating that the difference between the two ratings is negligible from a practical point of view.

To assess correlations between the parameters evaluated in the study subjects, the Pearson, Spearman, and Kendall coefficients were analyzed (**Table 5** and **Table 6**).

Statistical analysis of the correlation between Stress-Self-confidence (Pearson Correlation Coefficient (r) = -0.802 , p Coefficient = < 0.001 , Effect Size = -1.105) indicates a strong statistical significance, a strong negative correlation between stress and self-confidence.

The statistical verification of the correlation between Stress – Performance (Pearson Correlation Coefficient (r) = -0.629) shows a moderate negative correlation between stress and performance, while the Coefficient $p = 0.007$ and effect size: Effect Size = -0.740 indicates statistically significant differences.

Regarding the correlation between stress and performance self-evaluation, the Pearson correlation coefficient (r) = -0.091 indicates a very weak negative correlation between stress and performance self-evaluation, and the value of $p = 0.728$ and effect size (Effect Size = -0.091) reflects the lack of statistical significance.

Table 4. Evolution of Self-assessment of performance.

Measure 1	Measure 2 Test	Statistic	z	df	p	Effect Size	SE Effect Size
Self-assesment of performance	Initial	Final Student	0.000	14	0.500	0.000	0.384
		Wilcoxon	18.000	0.000	0.529	0.000	0.377

Table 5. Correlation table (Pearson and Spearman correlation).

		Pearson				Spearman			
		r	<i>p</i>	Effect Size Fisher's z	SE Effect Size	rho	<i>p</i>	Effect Size Fisher's z	SE Effect Size
Stress	Self-confidence	-0.802***	<0.001	-1.105	0.267	-0.886***	<0.001	-1.404	0.282
Stress	Performance	-0.629**	0.007	-0.740	0.267	-0.511*	0.036	-0.565	0.268
Stress	Self-assessment of performance	-0.091	0.728	-0.091	0.267	-0.179	0.492	-0.181	0.261
Self-confidence	Performance	0.447	0.072	0.481	0.267	0.407	0.105	0.431	0.266
Self-confidence	Self-assessment of performance	0.153	0.557	0.155	0.267	0.207	0.425	0.210	0.262
Performance	Self-assessment of performance	0.228	0.379	0.232	0.267	0.328	0.199	0.340	0.264

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 6. Correlation table (Kendall correlation).

		Kendall			
		tau B	<i>p</i>	Effect Size Fisher's z	SE Effect Size
Stress	Self-confidence	-0.772***	<0.001	-0.911	0.091
Stress	Performance	-0.385*	0.037	-0.406	0.153
Stress	Self-assessment of performance	-0.136	0.499	-0.137	0.175
Self-confidence	Performance	0.283	0.124	0.290	0.165
Self-confidence	Self-assessment of performance	0.144	0.471	0.145	0.175
Performance	Self-assessment of performance	0.276	0.175	0.284	0.165

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Between Self-Confidence – Performance, Pearson ($r = 0.447$ and p -value = 0.072) a moderate positive correlation is established, and the effect size index (Effect Size = 0.481) shows a significant difference.

The correlation between Self-Confidence – Performance Self-Assessment (Pearson ($r = 0.153$, $p = 0.557$, Effect Size = 0.155)) indicates a lack of statistical significance.

The Pearson coefficients ($r = 0.228$, p value = 0.379 , effect Size = 0.232), statistically analyzed for the relationship between Performance – Performance Self-evaluation emphasize a very weak positive correlation between them, which shows the lack of statistical significance.

By comparing the values of statistical indicators specific to each Pearson, Spearman and Kendall coefficient, results with the same significance were noted.

4. Discussion

H1 is confirmed. Following the data recorded and statistically analyzed, we notice that the methods and techniques of psychokinetic therapy, introduced in the specific training of young dancers aged 18 - 19, decrease stress levels, being better able to manage their reactions to daily events, requirements, and challenges.

Dance itself can be a stressful and anxious activity for young dancers, and exercise-based relaxation techniques improve their ability to cope with any requirements (Lawrence & Bolitho, 2011).

There are studies that have shown that stress management techniques improve cognitive nerve activity and control neurotransmitter release (Kershaw & Wade, 2012).

Breathing exercises have a positive impact on the brain by calming the stress response (Brown & Gerbarg, 2012), the amount of oxygen the body receives (Melgosa, 2000), a correct breath is an act that frees us from stress (Rodriguez, 2007), and relaxation techniques, based on progressive muscle relaxation and deep breathing exercises help reduce stress, improve physical and mental health (Tabibnia & Radecki, 2018; Toussaint et al., 2021). Other studies state that physical exercise improves attention, memory, school performance by increasing blood flow in the hippocampus, a structure that processes long-term memory (Constantin-Dulcan, 2019) and contributes to stress relief, relaxation of the whole body, improving the efficiency of internal organs and the whole body and optimizing the quality of life (Cătună & Buțu, 2021).

H2 is confirmed in terms of correlations between the analyzed parameters. Increased stress leads to increased anxiety, and these have negative consequences on the behavioral, cognitive, and affective manifestation of young people, with repercussions on school performance and, implicitly, on their quality of life (Racic et al., 2017). Taking into account that stress has a strong negative correlation with self-confidence (Pearson Correlation Coefficient (r) = -0.802 , p Coefficient = < 0.001 , Effect Size = -1.105 , and a moderate negative correlation with performance (Pearson Correlation Coefficient (r) = -0.629 , p value = 0.007 , Effect Size = -0.740), the results obtained guide us on the negative influence of increasing the level of stress perception in young people aged 18 - 19 years, while stress drop leads to an increased receptivity to the technical demands of dance. Therefore, students accept indications more easily, so they learn choreography much better, develop more promptly the evolution, aspects that lead to improved executions.

Self-confidence test demonstrates a moderate positive correlation with performance, which guides us to the fact that a positive attitude in the face of any challenges partially cancels out possible failures.

Numerous studies have demonstrated the interrelated relationship between stress perception, stressors, and anxiety with negative effects on school success, social adaptation, and interpersonal relationships (Crețu, 2009; Javier et al.,

2018), while another study conducted (Córdova et al., 2023) demonstrated that increased stress and emotional instability are the main disorders that negatively condition the learning/performance process. Moreover, if the stress factor persists for a short duration, we reach the state of optimal performance, also known as the state of flow. Performance peaks because of intense mobilization due to moderate stress levels. However, if the stressor persists too long, maximum performance begins to decline because anxiety sets in (Davidji, 2016). Teachers, coaches, and psychologists must know exactly the level of stress a dancer can withstand, and considering this, not to overburden them to avoid the risk of neurotic decompensation (Epuran, 2022), overburdening being the factor that generates stress, fatigue, burnout, exhaustion (Năstase, 2011).

Increased stress affects performance, which is also seen in studies that have researched this relationship (Kurniaty, 2020), and other studies establish a direct link between young people's well-being and school/academic performance (Beauvais et al., 2013, Seider et al., 2015, Luștrea et al., 2018).

Other correlations made in this study are between stress and self-assessment of performance, but also between performance and self-assessment of performance. These are insignificant, but coefficients Pearson (r) = 0.228, p value = 0.379, effect Size = 0.232, statistically analyzed for the relationship between Performance - Self-assessment of performance emphasize a very weak positive correlation between them, because self-assessment of performance has a strong educational character and therefore undervaluation can lead to self-sabotage and limit motor potential, and overvaluation can lead to taking unnecessary risks that ultimately lead to a high degree of frustration.

Through self-assessment, each dancer will assign attribute attributes, qualities, or defects that in time have a gradual transition from one extreme to another, depending on the individual evolution. In the world of dance, the qualities to which adolescents relate are somatic and functional (beautiful-ugly, tall-short, fragile-resistant, with fast or slow reactions), but also psychic (balanced-unstable, cognitive-intuitive, active-inactive, capable-incapable, eager-lacking interest, etc.) These self-assessments are important and are active not only during the training period of the dancers, but throughout their professional activity. Based on these self-assessments, self-control is formed, based on which the dancer's conduct in rehearsals, training and performances is accepted or repressed. Self-control is defining in obtaining the optimal ratio to be established between the dancer's motivation and his ability to move, from which will derive the level of technical difficulty he can achieve. This is the main mechanism for achieving a dancer's performance (Taylor & Estanol, 2015). The young dancer, correctly guided and oriented towards achieving motor and professional performance, is for society a cultural leader who will pursue his artistic vision with clarity and rigor.

The statistical analysis made guides us on the fact that when the young dancer is motivated, more, when he is encouraged, when he achieves success, he is more likely to increase the level of self-assessment of performance and thus have a positive perception of his own abilities and values.

Regarding the correlation between stress and self-assessment of performance, we believe that stress can negatively influence how young dancers assess themselves in relation to motor performance, but stress can also be a motivating factor and can lead to greater self-esteem when obstacles are high and overcome.

On the other hand, increased stress negatively affects performance and, implicitly, self-assessment of performance.

The data obtained confirm that stress and performance influence the self-assessment of the young dancer aged 18 - 19, both positively and negatively, depending on the circumstances in which both manifest and interact with the attitude and perceptions of young people on their physical and mental abilities and capacities.

The positive influence of psychokinetic therapy techniques for stress management on the motor performance of young dancers aged 18 - 19 years is reflected in the statistical values indicating the correlation between Stress - Performance (Pearson correlation coefficient (r) = -0.629 , p value = 0.007 , Effect Size = -0.740).

5. Conclusion

Psychokinetic therapy, through specific means of managing emotions and stress, contributes to lowering the level of perceived stress and increasing self-confidence in young dancers.

Psychokinetic therapy, through attention paid to the harmonious development of the body and motor skills, is a valuable component in preparing and improving the performance of future dancers, having a positive impact on both their physical health and their mental and emotional state.

The observations of this study, validated by other studies existing both in the world of psychology and in the world of dance, according to the results obtained, lead us to affirm that the means of psychokinetic therapy play a major role in increasing the confidence of the future dancer in his own forces.

6. Limitations of the Study

The disadvantage of the study is the extremely small number of subjects due, on the one hand, to the small number of places allocated by the state education in Romania, to vocational-artistic education and, on the other hand, to the evaluation of the 209-2023 promotion after the pandemic period. We mention that in Romania the restrictions due to the COVID-19 pandemic were between February 25, 2020, and April 2022, with a peak of restrictions in September 2020 (Rodianu & Marinescu, 2021).

The promotion analyzed in this study went through the COVID-19 pandemic during high school studies, which forced education to operate online for two and a half years. In this context, we mention that although in the first year of high school (respectively ninth grade, school year 2019-2020), the promotion had a staff of 25 girls out of the 40 places allocated to promotions by the Ministry of Education, 17 students completed high school studies (in 2023), 10 with the

classical dance specialization and 7 with the contemporary dance specialization. Therefore, for the class of 2019-2023 the loss was 32%, with 68% of students graduating from high school. The level of anxiety that caused professional dropout, with the orientation of students to other professions, can also be largely attributed to the concrete situation of distance education. That is why we consider that we have studied a special case that cannot be generalized to the entire artistic education.

Authors' Contribution

All authors have an equal contribution. All authors have read and agreed to the published version of the manuscript.

Institutional Review Board Statement

Ethical review and approval were waived for this study since the survey was anonymous, and the respondents agreed that researchers use their answers/opinions for analysis.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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