

Integrative Art Therapy for Psychosomatic Disorders in Children with Undifferentiated Connective Tissue Dysplasia

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Abstract

Undifferentiated connective tissue dysplasia (UCTD) is a hereditary disorder that typically manifests its clinical features in early childhood, particularly within the first five years of life. One common complication of UCTD is vegetative-vascular dystonia, which is linked to structural abnormalities in collagen. These changes can trigger a range of symptoms, including heightened psycho-emotional distress, especially in children who exhibit anxiety as a primary feature. This study explored the effectiveness of an integrative art-based therapeutic approach, specifically fairytale therapy, in managing psychosomatic disturbances in children with UCTD. After a six-month intervention, children participating in the art therapy program demonstrated a statistically significant reduction in psycho-emotional stress, averaging 13.2 ± 0.5 points ($P < 0.05$). Skin-galvanic response (SGR) outcomes also differed between groups: while classical psychotherapy produced a slight, non-significant increase (6.9 ± 0.01 units, $P > 0.05$), the integrative art therapy group showed a significantly greater improvement (8.6 ± 0.01 units, $P < 0.05$). These results indicate that fairytale-based integrative art therapy can be an effective method for alleviating anxiety and emotional tension in children with UCTD.

Keywords: Art-based intervention, Pediatric psychosomatic therapy, UCTD, Fairytale therapy, Biofeedback

Introduction

Recent scientific research has highlighted an increasing focus on syndromic disorders associated with connective tissue dysplasia (CTD) [1-3]. This growing interest stems from the high prevalence of CTD in the general

population, as well as its characteristic involvement of multiple internal organ systems, making it a complex and widespread condition.

Undifferentiated connective tissue dysplasia (UCTD) is a hereditary disorder whose complete clinical profile typically becomes evident by early childhood, often within the first five years of life. Due to its multi-organ impact, UCTD should now be viewed as a condition requiring an interdisciplinary clinical approach. While the scientific literature contains a significant number of studies on isolated manifestations of UCTD in specific organs or systems [1, 3-5], there remains a gap in understanding how external physical traits of UCTD relate to the underlying structure and function of internal

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organs—especially concerning the central and autonomic nervous systems.

This gap is significant because the functional state of the autonomic nervous system plays a critical role in the body's self-regulatory (sano-genetic) processes. Altered autonomic activity is widely recognized as a key diagnostic marker for somatic dysfunction. In UCTD, the development of autonomic imbalances, such as vegetative-vascular dystonia, is closely linked to structural changes in collagen [6, 7]. These alterations can produce a broad spectrum of clinical symptoms, including vasomotor instability, migraine-like headaches, vestibular dizziness, motor coordination problems, hyperventilation syndrome, vasovagal and cerebrovascular episodes, arrhythmias, and recurrent neurovascular syndromes [8, 9].

Such symptoms often exert a significant impact on the child's emotional and psychological well-being, especially in cases where anxiety is a prominent feature. The challenges of modern life have given rise to a new conceptual framework often referred to as the "anxious person in an anxious world." Anxiety in children with UCTD may escalate to panic attacks, which range from intense fear to subtler manifestations of inner discomfort—commonly described as "panic without panic" [10]. These muted or "emotionally blunted" panic episodes are frequently observed in UCTD patients, likely due to shared pathogenic mechanisms involving both collagen disruption and altered neurotransmitter regulation in the brain [11, 12].

Timely diagnosis, early intervention, and appropriate rehabilitative strategies are essential for preventing severe and atypical presentations of anxiety and panic in children with UCTD. Effective therapy must adhere to the principles of continuity, long-term commitment, and systematic treatment to ensure meaningful outcomes [13–16].

To address panic attacks in children with UCTD, integrative art therapy is considered a suitable and effective psychological intervention. In the 21st century, this form of treatment has evolved from a primarily visual arts-based approach into a comprehensive modality that utilizes multiple artistic forms—visual, musical, dramatic, and literary—to positively influence an individual's emotional and psychological well-being [17–19]. Within this framework, fairytale therapy holds particular promise. It facilitates access to deeply rooted, symbolic, and emotional conflicts, enabling children to work through psychosomatic symptoms in a playful and

creative environment. By engaging in various artistic activities such as drawing, acting, storytelling, and music, children can externalize inner tension and gradually restore emotional balance. The objective of our research was to assess the therapeutic value of integrative art therapy, specifically using fairytale-based methods, in alleviating psychosomatic disorders in children diagnosed with UCTD.

Materials and Methods

Our study involved 60 children (mean age: 14.1 ± 2.3 years) diagnosed with undifferentiated connective tissue dysplasia (UCTD), all of whom exhibited psychological disturbances characterized by panic attacks. UCTD diagnosis was confirmed using a custom-designed diagnostic questionnaire, adapted from Glesby's phenotypic map and modified by Martinov and colleagues [2, 3]. The questionnaire included 54 markers of minor developmental anomalies, and the presence of six or more was considered diagnostic for UCTD.

Panic attacks were diagnosed based on episodes of acute fear or anxiety accompanied by at least four symptom clusters, including:

- Palpitations, rapid heartbeat
- Excessive sweating
- Tremors or internal shaking
- Shortness of breath or air hunger
- Chest pain or discomfort
- Gastrointestinal distress
- Dizziness or fainting sensations
- Derealization or depersonalization
- Fear of losing control, insanity, or death
- Paresthesia (numbness/tingling)
- Sensations of hot or cold [20]

Conversion symptoms, such as a sensation of a lump in the throat, gait disturbances, pseudo-seizures, visual or hearing changes, or pseudocyesis, were also recorded as supplementary diagnostic indicators.

All participants had previously completed a course of psychopharmacological treatment and were then randomized into two equal groups of 30 individuals.

- Group 1 underwent a 6-month program of classical cognitive-behavioral psychotherapy.
- Group 2 received integrative art therapy based on fairytale techniques.

In group 1, the psychotherapeutic approach aimed to improve social functioning, reduce agoraphobic

behaviors, and prevent relapse. Sessions focused on cognitive restructuring, helping patients identify and correct exaggerated interpretations of benign somatic symptoms. A key behavioral technique used was systematic desensitization, where patients gradually confronted anxiety-inducing scenarios—first imagined, then in real life—ranked in order of severity. Training included progressive muscle relaxation, enabling patients to manage escalating anxiety during these exposures. Ultimately, this approach sought to empower patients to navigate previously avoided situations without fear [21, 22].

For Group 2, participants were divided into three art-based subgroups, each comprising 10 children. Each group was tasked with collaboratively creating and performing an original fairytale. Throughout 12 sessions (each lasting two hours), participants developed their stories around shared themes derived from their fears and emotional struggles. Each child's creative input shaped the narrative. Children chose their roles based on their individual interests and artistic preferences. Activities included designing posters, building sets, selecting or composing music, creating costumes, singing, reciting, and playing instruments. The culmination of this process was a group performance, symbolically resolving the emotional challenges identified during therapy [23-26].

Assessment Tools and Statistical Analysis

Before initiating the therapeutic interventions and again upon their completion, all participants were evaluated using the Beck Depression Inventory (BDI) and skin-galvanic response (SGR) measurement. The Beck test comprises 21 items, each offering four possible responses, scored on a scale from 0 to 3. A total score ranging from 0 to 21 was considered indicative of emotional stability.

SGR measurements followed a standardized procedure: the participant's ring finger was degreased and fitted with a sensor. Following 6–7 preliminary questions, 20 core questions were posed to register galvanic skin responses. Readings were recorded in conventional units on an electronic monitor, using a constant direct current ranging from 10 to 50 mA. SGR values were evaluated on a scale from 0 to 10 points to determine the general level of anxiety.

For statistical analysis, the SPSS 10.0 and Statistica 6.0 software packages were used under the Windows XP

operating system. Statistical significance was defined at a probability level of $P < 0.05$.

Results and Discussion

At the onset of the psychocorrective intervention, the mean psycho-emotional stress scores, as measured by the Beck test, were 24.1 ± 0.8 points in the first group (receiving classical psychotherapy) and 24.8 ± 0.6 points in the second group (undergoing integrative art therapy). The SGR scores were 4.1 ± 0.1 points and 4.2 ± 0.1 points, respectively, both reflecting a moderate level of anxiety.

Following the six-month therapy period, patients in the first group demonstrated a reduction in psycho-emotional stress to 18.7 ± 0.5 points, though this change was not statistically significant. In contrast, participants in the second group showed a statistically significant decrease to 13.2 ± 0.5 points ($P < 0.05$), indicating a more pronounced therapeutic effect. The SGR readings in the first group increased to 6.9 ± 0.01 units ($P > 0.05$), which was not statistically significant. However, the second group exhibited a reliable and considerable increase in SGR to 8.6 ± 0.01 units ($P < 0.05$), suggesting improved autonomic function.

The more substantial reduction in psychosomatic tension observed in the group receiving integrative art therapy is likely attributable to the therapeutic potential of the creative process itself. Art-based interventions facilitate the expression and resolution of internal psychological conflicts. This concept aligns with the ancient Greek view of art as a sanctuary during times of personal adversity. Participation in creative activities helps individuals overcome inner doubt and gain confidence in expressing their fears and emotional struggles.

Integrative art therapy not only enables deeper emotional engagement with the patient but also creates a supportive and imaginative atmosphere through the use of fairytale-based narratives, which are especially effective with children. This approach transforms unconscious conflicts into symbolic expressions, allowing for constructive resolution. Additionally, it shares methodological similarities with the principle of systematic desensitization used in classical behavioral therapy, gradually exposing the individual to anxiety-inducing stimuli in a safe and manageable form.

Although both treatment groups were designed to be methodologically equivalent, the group-based format of integrative art therapy offered distinct advantages. It

facilitated the development of interpersonal and communication skills, fostered mutual support among participants, and allowed children to witness the effects of their behavior on others. Furthermore, the group dynamic encouraged role experimentation and behavioral flexibility, ultimately enhancing self-esteem and decision-making abilities. These findings underscore the superior effectiveness of integrative art therapy, particularly when using fairytale-based interventions, in reducing anxiety and improving psychosocial functioning in children with UCTD.

An art therapy group fosters a democratic environment where all members share equal rights and responsibilities, resulting in a reduced dependency on the therapist. The art therapist remains present beside the patient throughout the creative process, refraining from offering judgments or remarks. Instead, they encourage emotional expression—including negative emotions—and help the patient explore their creations by asking guiding questions. Within this setting, both individual artistic expression and group interaction play significant roles in shaping the overall therapeutic experience. Fairytale therapy, in particular, draws upon ancient art forms preserved in folklore. These forms, characterized by their simplicity, directness, and symbolic connection to the unconscious, serve as a vital source of psychological well-being in children.

Conclusion

1. Implementing integrative art therapy through fairytale-based methods significantly reduced psycho-emotional stress and anxiety levels in children diagnosed with undifferentiated connective tissue dysplasia (UCTD).

2. Contemporary fairytale therapy provides a solid foundation for a comprehensive and synthetic approach in art therapy. Its integrative structure has proven effective in alleviating emotional tension in patients.

This approach holds promise for addressing psychosomatic disorders, aligning with the cultural mindset, expectations, and emotional orientation of Ukrainian patients. Integrative art therapy encompasses three interrelated aspects—medical, social, and educational—which together emphasize the value of human potential as a key element for the sustainable development of society.

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Ethics Statement: All procedures were performed under the ethical standards of the responsible ethics committee, both Institutional and national, regarding human experimentation and the Declaration of Helsinki of 1964 (as revised in 2008).

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