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## CASE REPORT

### The Benefits of Music-, Dance/Movement-, and Art Therapy on Improving and Retrieving Cognition and Memory with People Suffering from Korsakoff Syndrome: A Case Vignette Report

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## ABSTRACT

This article reports about the beneficial effects of creative arts therapy on memory and cognition for patients with Korsakoff Syndrome, residing in a long term care facility specialized in the care of people with Korsakoff. Creative arts therapy is an umbrella term for healthcare professions who use the creative and expressive process of art-making to improve and enhance the psychological and social well-being of individuals of all ages and health conditions. It is a non-pharmaceutical intervention, using the power of the experience by *doing* rather than by *speaking* about the struggles in daily life.

There is still little knowledge on how creative arts therapy may contribute to improving the quality of life of patients with Korsakoff, or reducing the impairments they suffer.

In this article several case examples from the field of creative arts therapy, specifically music therapy, arts therapy and dance/movement-therapy, are described. These case examples portrait different persons with Korsakoff who benefit greatly from creative arts therapy while they are struggling with their physical and mental problems.

Typical characteristics of persons suffering from Korsakoff are memory impairment, confabulation and problems with executive functions, caused by their chronic alcohol abuse which led to developing Korsakoff. The aim of this article is to provide greater insight into how to treat patients with Korsakoff through creative arts therapy. The different case vignettes, describing the authors lived experiences, give the reader insight in the real-world context in which creative arts therapy is practiced. By giving the patients a face and a voice and showing their artistic skills, we hope to break the stigma that is chasing them: the low-life-drunks who made a big mess of their life.

**Keywords:** Korsakoff syndrome; Wernicke Encephalopathy; Alcohol-abuse; Confabulation; Executive functions; Memory disorder; Cognitive decline; Creative Arts therapy; Music Therapy, Arts therapy, Dance/Movement therapy.

## 1. Introduction

Korsakoff Syndrome (KS) was first described by the Russian neuropsychiatrist Sergei Korsakoff in 1887 as “a form of psychic disorder which occurs in conjunction with multiple neuritis”.<sup>1</sup>

KS is a disorder that primarily affects the memory system in the brain. It usually results from a deficiency of thiamine (vitamin B1), which may be caused by alcohol abuse, dietary deficiencies, prolonged vomiting, eating disorders, or the effects of chemotherapy.<sup>2</sup>

The thiamine deficiency causes a metabolism impairment, resulting in neurological deficiencies. This acute phase is called Wernicke Encephalopathy (WE). *WE often has a sudden onset and is characterized by movement and balance problems, loss of coordination, confusion, disorientation and abnormal eye movements.* Most patients first develop a delirium, marked by confabulation, gait disorder and problems with memory and disorientation.<sup>2</sup>

When the acute phase of WE is not treated, death proceeds in 20% of the cases. If the WE clears and a profound disorder of memory remains as a chronic rest syndrome, it is considered to be Korsakoff Syndrome. 85% of the survivors develop KS. Only 20% recover completely. Up to 25% of survivors of WKS do not show any improvement in cognitive functioning, and will require long term care.<sup>3</sup>

KS occurs more gradually and the symptoms are usually problems with attention and concentration, gaps in memory which are usually filled inaccurately (confabulation) and a difficulty learning new information have great difficulty learning and retaining new information as well as problems recalling memories from the recent past.<sup>3</sup> In short, KS is a residual syndrome in patients who suffered from Wernicke Encephalopathy. KS is predominantly characterized by global amnesia, and in more severe cases also by cognitive and behavioral dysfunction.

### 1.1 Prevalence and incidence

There is a paucity of literature about the prevalence and incidence of KS. In this article we focus on the situation in The Netherlands, the home country of the authors as well as the location of the long-term-care facility where the case-examples take place.

The total number of inhabitants in The Netherlands is 17.000.000. Approximately 600.000 people suffer from severe alcohol abuse (> 12 glasses per day). 2 till 5% of these people develop KS. The prevalence of KS is estimated on 48 per 100.000 inhabitants; this brings the total estimated number of patients suffering from KS to 8.000 to 10.000. This number is not accurate, as many of the alcohol-addicted people avoid healthcare.<sup>3</sup>

KS patients can be admitted to a long term care facility (LTCF) where they receive 24/7 care. In the Netherlands there are LTCF that are specialized in the care of people with KS. Besides that, some general LTCFs have a specialized ward where people with KS reside. Approximately 1350 KS patients are living in a long-term care facility where they receive 24/7 care. The average age of admission is 50 years.<sup>3</sup>

Patients with KS who reside in a specialized LTCF usually have comorbidity in more than one domain.<sup>4</sup> Most common in the somatic domain is COPD, cardiovascular disease, hypertension, diabetes mellitus, cerebrovascular insufficiency, epilepsy and malignancy. In the psychiatric domain these are ADHD, psychosis, anxiety and personality disorders.<sup>3</sup>

In this article we focus primarily on memory- and cognitive dysfunction of patients with KS.

### 1.2 Diagnosing Korsakoff Syndrome - Memory and Cognition

The Diagnostic and Statistical Manual of Mental Disorders (5<sup>th</sup> ed.; (DSM-5; American Psychiatric Association, 2013)<sup>5</sup> uses the following definitions and diagnostic criteria for Korsakoff Syndrome and other alcohol-related cognitive disorders are used:

**“Alcohol-induced major neurocognitive disorder, amnestic confabulatory type”.**

- A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:
1. Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and

2. A substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.
- B. The cognitive deficits interfere with independence in everyday activities (that is, at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).
- C. The cognitive deficits do not occur exclusively in the context of a delirium.
- D. The cognitive deficits are not better explained by another mental disorder.

Creative arts therapist are part of and contributes to the multidisciplinary team of professionals who are responsible for the accurate diagnosis of a patient. Diagnosing a patient is not directly part of the core-activities of a creative arts therapist. However, when an initial diagnosis is made by the medical- or psychological staff member, the CAT can confirm or adjust this diagnosis, based on the observations the therapist has made within the therapy-sessions. The DSM-5 is a helpful tool to base the findings of the CAT.

Based on the description derived from the DSM-5, it is obvious that memory - and cognitive impairments are most notable in persons with KS. Memory deficits are present in both the long term memory and short term memory<sup>6</sup> but persons with KS are typically more severely impaired in their ability to create new memories (anterograde amnesia) than in recalling events from before the brain damage<sup>7</sup>. While anterograde amnesia is the most prominent symptom of KS, retrograde amnesia (loss of memories that were formed before the onset of amnesia) can also be present<sup>8</sup>. Besides that, executive deficits, such as problems with inhibition of behavior, high interference of information sensitivity, poor judgment, poor planning abilities, problem solving inabilities, and perseverative responses are also present<sup>9,10,11</sup>.

When discussing memory impairments, we often focus on the forgetting of events, but patients with Korsakoff's syndrome are also known for remembering incorrect events; for instance, a patient who has played the guitar all his life is telling about the time that he used to play alongside Jimmy Hendrix. We will never know for sure if he really used to play with Jimmy, but he is absolutely convinced that this actually happened. This is referred to as confabulations<sup>12</sup> and is yet another prominent symptom persons with KS

present themselves with. Confabulations generally refer to the emergence of memories of experiences and events that, in reality, never took place, and which are unintentionally produced<sup>12</sup>. They can be described as 'false or erroneous memories arising in the context of neurological disease'<sup>8</sup>. Due to the damage to various brain circuits involving the memory and executive functions, the memories arising are false or jumbled<sup>7,13</sup>. These spontaneous confabulations are commonly related to autobiographical memories<sup>7</sup> and typically have a grandiose nature<sup>14</sup>.

## 2. Creative Arts Therapy

Creative Arts Therapies (CAT) is an umbrella term for healthcare professions that use the creative and expressive process of art making to improve and enhance the psychological and social well-being of individuals of all ages and health conditions.

In CAT, the creative-expressive process is used as a dynamic and vital force for growth and change for the client(s) engaged in this process<sup>15</sup>. Stabilization of daily-life-situations is often "all" that patients with KS need. The creative-expressive process engages physiological sensations, emotions, and cognition; facilitates verbal and non-verbal symbolization, narration, and expression of conscious or unconscious conflicts and meaning-making through internal and external dialogue and communication between oneself and others<sup>15</sup>.

Professional specializations include art therapy, music therapy, dance-movement therapy, drama therapy, psychodrama, and biblio/poetry therapy. Creative arts therapists work in a variety of settings such as hospitals, educational institutions, community mental health facilities, prisons, hospices, and private practices<sup>15</sup>.

Within Creative Arts Therapy there are several generic laborious factors which contribute to the success of a treatment, no matter the (mental or physical) health issues of the client, the intervention or the method<sup>16</sup>. These common principals and approaches between creative arts interventions and psychotherapeutic interventions are e.g., the learning theory of modelling, classical and operant conditioning. Also, the principles of cognitive behavioral therapy and schema therapy are frequently used in creative arts therapy, as well as the acceptance and commitment therapy, depending on the patients' needs and treatment-goals.

The most paramount difference between CAT and Psychotherapy is the fact that CAT is a merely non-verbal intervention with emphasis on *experiencing by doing*, while in psychotherapy the client and therapist *talk* with each other about the client's psychological issues<sup>16</sup>.

## 2.1 Creative Arts Therapy and Korsakoff Syndrome

The aforementioned anterograde amnesia is the most prominent symptom of KS<sup>6</sup>. On the one hand the patient might not be able to store new information any longer, he/she has problems with imprinting. On the other hand however, new information might be stored, but can no longer be retrieved<sup>17</sup>.

In CAT, different ways of retrieving newly gained information are being explored through music,

arts, or dance. The different art forms are creating a bridge to overcome the memory gaps. The case vignettes of Jenny, Stef, Paul and Nick are good examples.

### 2.1.1 Dance/Movement-therapy

In the case-example of Jenny the dance-movement-therapist used specific techniques such as mirroring<sup>19</sup> and witnessing<sup>20</sup>, as well as the therapist's presence. With these techniques the parasympathetic nervous system can be activated, which works in two directions; from body to brain and from brain to body. When the parasympathetic nerve senses safety, a person is able to get into social interaction and even communicate and share internal matters. People feel seen by others.

#### Dance/Movement Therapy

Jenny, a woman who is diagnosed with KS, was dancing with wide open arms as if she had wings. Her facial expression, concentration and movement quality showed that she was not imitating a shape, but trying to really feel her imaginary wings. I mirrored her movement and asked about the meaning of her dance. Jenny answered: *"it is a bird, a peacock."* I then replied: *"Oh wow, a peacock, that's special because you hardly see them fly....?"* She answered: *"I had a dress with a peacock design...."*, and she started to tell a story about a happy period in her life at the time that she wore this dress frequently. She talked about a lover, about traveling and visiting music festivals and feeling free. She "beamed" while she spoke, and she straightened her normally bent-over body. With this change of her body posture, Jenny was creating space in her chest. She was happy and surprised that all these memories came back, out of the blue, while she was dancing.





Dance is body language, and body language is communication. Jenny subconsciously communicated an inner state with her body and that particular movement, the flying. The therapy facilitated bringing back the memory of feeling freedom into her cognition. She got aware of it.

This is a typical example of body and mind connection. Everything we experience in life, are impressions imprinted and stored in our cells. This (body) memory expressed itself through movement and can come into the awareness of a client. Body awareness contributes to healthy functioning and cognitive control<sup>18</sup>. It can bring more physical and mental balance in a person's life. Jenny brings her body into balance by changing her body posture through standing straight-up while she danced. She created an inner space in her chest, which provided her to deeply breathe in and out. A lack of inner space can be symbolic for the lack of freedom and personal space clients with KS who reside in long term care facility can experience.

The therapy supports coping with the permanent situation.

### 2.1.2. Music Therapy

In the case-example of Stef in music, no matter how long ago the songs have been written, to his own astonishment Stef would almost always be able to sing along with the *melody* of his old tunes – especially after the therapist had *cued* him with musical accompaniment. This observation has been noted by various music therapists working with Stef, and is congruent with the findings of Cuddy, Sikka & Vanstone<sup>21</sup> who reported that the „musical lexicon” (the brain's representational system for music-specific stimuli) remains relatively intact both in people with Alzheimer's Disease and healthy older adults. This system is also closely linked to associative memory as described by Peretz & Coldheart<sup>22</sup>.

### Music Therapy - Stef

**Stef, a former manager at a multinational oil company, prefers exercising full control over his daily life. However, after multiple strokes and a diagnosis of KS, Stef faces complex neuro-cognitive symptoms and a loss of his highly-valued independence.**

**Even though KS is typically associated with a lack of insight into the sufferer's own illness, Stef is well-aware of his difficulties with focusing, remembering and learning, and would often talk about how his illness affects his daily life.**

**Stef uses writing, singing and listening to songs as a way to escape from his daily struggles into a realm where his highly active and creative mind does not run into obstacles and strict regulations. Expressing his emotions through music comes naturally to him. Whenever a curious, funny or touching topic comes up in our conversation, he exclaims:**

***„That's a song in the making!"***

**The form, rhythm and lyrical themes, all characteristic parameters which are inherent to the music, provide him with structure without the need for any external „rules". At the same time the goal of creating a tangible product, - a new song - , helps him focus his attention, which normally spoken costs him great effort.**

**Over the course of years, Stef has created an impressive library of songs composed by himself with the help of different music therapists. To make the achievement even more tangible, all the songs were recorded and saved on his computer. Stef takes great pride in listening back to them.**

***„Did I really write that? That's wonderful! We should release an album!"*** – he would say.



When having a conversation with someone with KS, one might notice the free associations, bold logical jumps and the „honest lies” (confabulations) they use to fill in the gaps in their memory. In the world of poetry and songwriting this elusiveness and openness to change can be used as an artistic feature and a way to come into the flow, picking up snippets of seemingly lost memories on the way. Or as Stef would put it: „It’s amazing that you know what you don’t know!”.

### 2.1.3. Arts Therapy

In arts therapy, any subject can be an inspiration and invitation to a good conversation, e.g., the seasons and holidays, or important recent events A piece in the newspaper, a poem or a short story can be the trigger, to recall memories as “food for the soul”. The themes of a session are not chosen randomly but consciously, given the therapeutic value of these themes for this specific population.

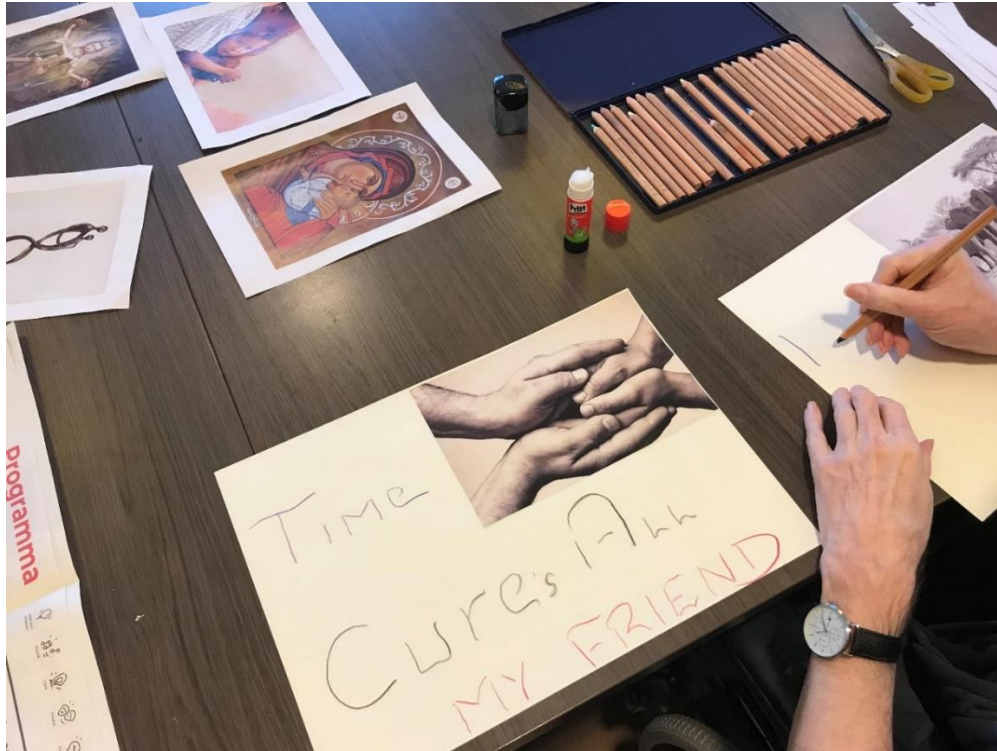
Every group session has a fixed structure as it vouches for grip and safety. As most of the participants present themselves rather passively and apathic, it is important to inspire and activate them by introducing a theme. The participants are invited to talk about the theme with each other. The artistic exercise that follows is offered step-by-step, following a given structure. This results in a sense of competency and contributes to creating a positive experience. While evaluating and appreciating each other’s creation, the participants are challenged to find the coherence between the different pieces of art. This process enhances the interest towards each other. They become part of the group more and more, they dare to open up and show themselves not only through their creations. The case-vignette of Stef reflects the beneficial effects of arts therapy.

#### Arts Therapy - Stef

Besides music therapy, Stef also loves to join the Arts Therapy group-sessions on a weekly base. He is always looking forward to these sessions. He enjoys the “Philosophy-game” the most: this is a game in which the group gets to see pictures of a certain theme unknown to the participants. They have to guess what is the theme of the day by talking together about the pictures. It challenges Stef to use his brain, it forces him to *think*. Once the topic of the theme is guessed, all participants get to create an artistic image that fits in the theme. Stef, who does not consider himself to be a very creative person, would make a collage of images, accompanied by short “one-liners” in writing. He loves doing this, it makes him happy and proud, he loves showing his collages to the rest of the group.

For Stef, participating in this group is very important, especially the verbal part of it, in combination with the creative part. He enjoys it when newcomers join the group, as he likes to hear new things and meet new people. When the new-comer happens to be a pretty woman, it makes his day even more.





In the case-example of Nick, it shows that sharing one's life story and working this out in any kind of art form enhances the connection with yourself. Although many people with KS have impaired insight of their (alcohol-abusive) past life and their illness, some suffer from the feeling that they messed up their own life, "I am to blame myself

that I am imprisoned in this institute". The people surrounding them often think alike, stigmatizing these "drunks". They suffer from physical, cognitive and social loss. Participating in arts therapy sessions give them the space and the opportunity to experience that life is more than the past and the present.

### Arts Therapy - Nick

**Nick has been a marine in the Navy. After sharing his life story in which his time in the Navy came up, we are searching the internet for a picture of the submarine in which he used to sail on. As he is painting the picture, Nick is reminiscing about his time in the Navy, and all the journeys he made. When the painting is finished, Nick exclaims "I baptize you "The Seagull" and wish you a safe voyage". Afterwards he shares his inner feelings by saying "I really get emotional here, it recalls so many memories. What a nice picture I drew, I am so happy.**





Paul's case-example shows that people with KS have encountered many losses, not only in their social life, but also in the skills they used to master. This has a huge impact on their self-esteem. Making mistakes thus has to be avoided. The errorless learning – method has proven to be an effective method for (re)learning tasks in several patient groups with amnesia. Rensen et al<sup>23</sup>

studied the effects of errorless learning training on (re)learning tasks in a patients with KS. The results showed that, despite severe amnesia, patients with Korsakoff's syndrome have the potential to (re)learn everyday skills. Errorless learning might be beneficial for memory rehabilitation in patients with Korsakoff's syndrome in clinical practice.

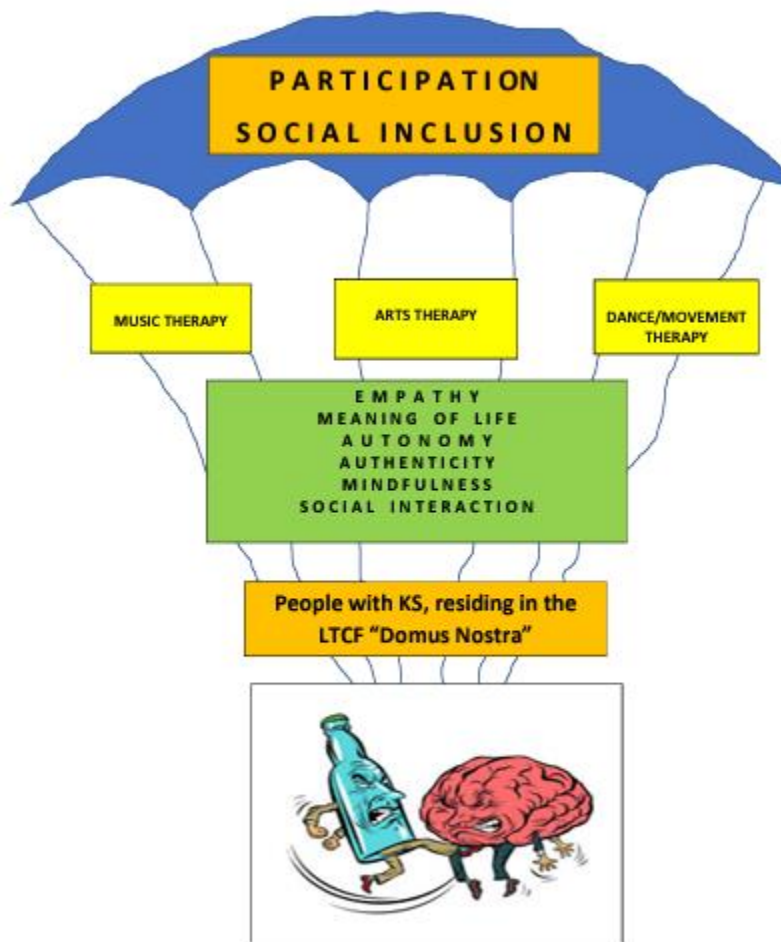
### Arts Therapy - Paul

**In his younger years Paul learned how to make technical construction work-drawings. When the arts therapist asks him to draw a house, he is hesitant to start, saying "I don't know how to...". However, the minute he is handed a blank paper and a pencil in his hand, he starts drawing, completely focused on the task. He draws straight lines in perfect perspective. For just a short moment he is the "architect" once again.**

### 3. Discussion

Domus Nostra, which means “Our House” in ancient Latin language, is the name of a long term care facility located in The Hague, The Netherlands, and is part of a larger Care-organization called “De Saffiergroep”. All the case-examples in this article have been taken place here. 84 patients with KS are residing in Domus Nostra. The team of creative arts therapists consist of three music therapists, three arts therapists and one dance/movement therapist. The set goals they are trying to achieve are depicted in the parachute-drawing. “Participation” and “Social Inclusion” are

the two most important lines all therapists are following. The creative arts therapists of Domus Nostra are working on these goals on a daily basis, and they are collaborating to make CAT as beneficial as possible for their residents. A good example is the joint theater-project<sup>24</sup>, where all the creative arts therapists work together with residents, caregivers, and volunteers who live in the same neighborhood where Domus Nostra is located towards a huge performance on stage. The set goals along these lines are depicted in the box underneath the parachute-screen.



There is still little knowledge on how creative arts therapy may contribute to improving memory and cognition in people suffering from Korsakoff syndrome. Literature about this specific topic is scarce. However, all case-vignettes in this article are good examples of persons with KS who benefit greatly from creative arts therapy,

underpinning the beneficial effects as stated in the literature.

For people with KS, due to the cognitive decline and deterioration of the executive functions, the ability to communicate and express oneself and to initiate activities gets worse over time. Creative arts therapy may be the key to opening up again,

both to oneself and to the people surrounding them<sup>25</sup>.

In the case-vignette about Stef, he could not have made it more clearly by exclaiming: *It's amazing that you know what you don't know*". The case examples in this article provide greater insight into how to treat patients with Korsakoff Syndrome through creative arts therapy. It also gives the reader insight in the real-world context in which creative arts therapy is practiced. By giving the patients a face, a voice, a stage and thus the possibility to show their artistic skills, we hope that this article helps breaking the stigma that is chasing them: the low-life-drunks who made a big mess of their life.

#### **4. Conclusion**

Treating people with Korsakov Syndrome, finding the most suitable intervention to meet their needs,

is not an easy task. Due to the cognitive decline (specifically the memory loss and impairments of the executive functions, and confabulation), it comes down to trying to find a needle in a haystack. Creative Arts Therapy is a powerful tool finding this needle, as CAT is a merely non-verbal intervention, characterized by experiencing by doing.

#### **Conflict of Interest**

All authors declare that there is no conflict of interest.

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