

## Music Therapy in People Suffering from Korsakoff Syndrome: A Case Report

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### ABSTRACT

*This article reports about two different cases of persons with Korsakoff syndrome (KS) who benefit greatly from music therapy while they are struggling with behavioral and emotional problems, caused by their chronic alcohol abuse which led to developing KS. Typical characteristics of persons suffering from KS are memory impairment, confabulation and problems with executive functions.*

*Music therapy is a non-pharmacological intervention which has the potential to improve communication skills, reducing behavioral problems and thus leading to a better quality of life in KS-patients. An empathic yet directive approach has been proven beneficial when working with KS-clients.*

*There is still little knowledge on how music therapy may contribute to improving these skills or reducing these impairments. The two case reports that follow provide greater insight into how to treat patients with KS through music therapy, specifically in patients who are residing in a long-term care facility specialized in KS.*

### Keywords

Alcohol-abuse, Confabulation, Executive functions, Korsakoff syndrome, Memory disorder, Music therapy.

### Korsakoff Syndrome

Drinking alcohol excessively over a prolonged period of time may lead to (severe) brain damage. This can be caused by a combination of reasons including vitamin B1 deficiency (thiamine), the toxic effects of alcohol on nerve cells, head injury and blood vessel damage. There are three main types of alcohol related brain damage; Wernicke's encephalopathy (WE), Korsakoff syndrome (KS) and alcoholic dementia. The combination of WE and KS is called Wernicke-Korsakoff syndrome (WKS). The vitamin B1 (thiamine) deficiency is mostly due to malnutrition and malabsorption. This occurs particularly among (chronic) alcoholics, as they tend not to eat nutritious meal. Alcohol neurotoxicity and thiamine deficiency lead to severe brain damage. If acute WE is not treated, 20% of the cases proceed to death. 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 [1,2]. WE often have a sudden onset and is characterized by movement and balance problems, loss of coordination, confusion, disorientation and abnormal eye movements. 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 [3].

Studies on the prevalence and incidence of KS are very limited. In the Netherlands, the country where the two case reports that follow are taking place, the prevalence is estimated on 48 per 100.000 inhabitants [4]. KS-patients can be admitted to a long-term care facility where they receive 24/7 care.

Residents with KS show a variety of behavioral symptoms, cognitive deficits, confabulations and a lack of insight into their

deficits. All these features make caring for the residents extremely challenging, and ask for specific skills and capacities of clinicians and caregivers in supporting them. One of the non-pharmaceutical treatments offered to persons with KS in long-term care facilities is music therapy [5].

### Music therapy

Music therapy is seen as one of the few approaches able to reach these clients. The American Music Therapy Association (AMTA) defines music therapy as follows: 'Music therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program' [6]. Music therapy uses music experiences and patient-therapist relationships in order to effect therapeutic change. Music therapists are part of the multidisciplinary team and participate in interdisciplinary treatment planning, ongoing evaluation, and follow-up. They assess emotional well-being, physical health, social functioning, communication abilities, and cognitive skills through musical responses.

Music therapists design music sessions for individuals and groups based on client needs using music improvisation, receptive music listening, song writing, lyric discussion, music and imagery, music performance, and learning through music [5,6].

Applying music therapy to persons with KS is challenging because of the aforementioned deficiencies. The following two case reports illustrate the finding that music therapy can be successfully applied in persons with KS. In the two case reports that follow, many of the above-mentioned struggles and impairments caused by KS will be addressed. The music therapist (the first author) drew of her knowledge and experience of working with residents with KS. Using this experience and knowledge as a starting point, she was able to meet the treatment-goals of the residents. The primary focus of the treatment was finding a way of expressing the client's own feelings (Case A), and improving the social skills between residents (Case B).

The first report (Case A) tells the story of a person with KS whose lack of verbal communication hinders him from showing his emotion. By experiencing the music, he relives his "glory days" as a musician, making him feel like a whole person again. Music turns out to be the trigger for him to open up and show the man that he really is, as opposed to the patient with severe cognitive impairments whose lack of verbal communication hinders him from showing who he really is.

The second report (Case B) describes a group therapy setting in which the lack of social skills hinders the residents who live together in a closed setting from bonding with each other. Through therapeutic song-writing, all residents are offered the opportunity to rewrite the lyrics of a familiar song, personalizing it to their own experience towards each other.

### Case A: I used to be a rock-star

Bill is a 53-year-old man who hardly speaks. He has always been an introvert, but in the past years he became more and more the silent one, resulting in a reclusive appearance on the ward of the long-term care facility where he has been living for the past three years. This facility is specialized in people with Korsakoff syndrome.

Besides his introvert character, his physical condition has also disabled Bill to speak. His alcohol-abuse, along with him being a heavy smoker, has taken a large toll on his body. He is extremely short of breath, suffering from chronic obstructive pulmonary disease (COPD). If he tries to speak, he starts coughing right away, resulting in retching and gagging. He is ashamed of this, reason why he refrained from talking at all.

The people surrounding Bill encourage him to speak, as his social circle is getting smaller by the day. Bill is slowly turning into a recluse, isolating himself from the world. For months, a speech-therapist has been working closely with him on improving his communication skills, but unfortunately with little to no positive result.

As Bill has always been a music lover, the speech-therapist asks the music therapist to step in and see if music can be the key to a better communication with Bill. Music is a tool of non-verbal communication, allowing persons like Bill to communicate in a safe, non-verbal way.

The first time I meet Bill while he enters the music-therapy room with his walker, I see a fragile, vulnerable man, just skin and bones. He walks the way many persons with KS walk: shuffling with small steps and straddle-legged. The little tray on his walker carries his cigarettes, a lighter and a small ashtray. Bill never leaves his room without them. Most cigarette-butts are laying besides instead of in the ashtray. Next to his cigarettes I see 3 CDs.

When we shake hands, Bill reacts somewhat hesitant, not knowing what to expect. His nurse has explained to him what is on his morning schedule, but Bill forgot. But when he sees all the guitars hanging on the wall, a piano in the corner, and a huge drum set, a big smile appears on Bill's face. He instantly realizes that this meeting with me is all about music!

The CD's that he brought along are the perfect trigger to start our conversation. I ask Bill what music he brought with him. His eyes begin to twinkle when he tries his best to answer me. I give him ample time to formulate his answer. There is a CD of Yes, a symphonic rock-band from the early Seventies. Also, there is a CD of Pink-Floyd from the same era and the same music style. The choice of his music combined with his age gives me insight in what kind of music-lover Bill is. It just so happens that I know this music pretty well, it seems that we have the same musical taste. I ask Bill if he would enjoy listening to me playing the guitar and sing for him. Bill nods his head, so I grab my guitar and start playing "Roundabout" from the famous Yes-guitarist Steve Howe.

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Bill closes his eyes and seems to enjoy it; his breathing starts to slow down and becomes more regular. When the song is over, he opens his eyes again. I am intentionally not asking for a reaction. After all, this is the first time we meet, so I don't want to push anything.

After the next song I play for him, "Wish you were here" from Pink Floyd, there is still no verbal reaction. I take one of the CDs he brought and put it in the CD-player, and I turn up the volume. Bill starts tapping his foot on the exact rhythm of the song we are listening to, which tells me that he has a good sense of rhythm. His hands start moving along as well. After this song I start talking with him. I tell him that I can see how much he enjoys the music. I compliment him on his good ear and rhythm. Bill starts to smile, and slowly but surely, he starts talking about his own musical career in the past. He has been an amateur "rock-star", playing the drums in a symphonic rock-band. He even played with a famous band once when their regular drummer got sick, so he tells me.

As this is our first meeting, I don't want to overstay my welcome. I ask Bill if he would like to meet with me on a weekly base, and he agrees with a big smile. In the weeks that follow I keep building on our trust, and I give him more and more space to express his feelings and share his thoughts. He is stumbling to get his words across, but he gets the message out. Bill tells me that he has been playing all over the country in small bars. He became drinking heavenly in those days. We also start to analyze the lyrics of many songs, and Bill recognizes himself in a lot of these songs; songs about addiction and craving and sobriety. I also bring in some percussion-instruments and let Bill play. Obviously, this is going pretty laborious, but he seems to enjoy it. I encourage him to keep beating the drums.

The weekly music therapy sessions have brought much joy and pleasure back into Bill's life. He does speak during these sessions, and according to the nurses on the ward, Bill is somewhat more socially involved, if only for a short while.

There are two elements in Bill's case report that are characteristic of persons with KS, and these might be connected to each other. The first element being memory impairment, one of the most easily noticeable symptoms of KS: Bill was told he had an appointment, but he forgot. Memory deficits are present in both the long-term memory and short-term memory [7], 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 [1].

The stories from Bill's past are remarkable, and most likely due to another known symptom of KS: confabulations. Confabulations can be described as 'false or erroneous memories arising in the context of neurological disease' [8]. The music Bill hears triggers him to spontaneously reminisce about his past. Due to the damage to various brain circuits involving the memory and executive functions, the memories arising are false or jumbled [1,8]. These spontaneous confabulations are commonly related

to autobiographical memories [1], and typically have a grandiose nature [9].

We will never know for sure if Bill really used to play in a famous rock-band. However, he is absolutely convinced that this happened, and for him this is the truth. The music therapist used this moment of opening up to start building a connection. Creativity and empathy are two key components of the method of working with persons with KS as used in the Netherlands [10], which connects flawlessly with the music therapy approach.

### **Case B: Living apart together**

Another prominent symptom in alcohol induced KS is apathy, which was already recognized in the earliest case reports dating from the 19th century [1]. A recent study of Oey et al. [11] showed that despite severe general apathy, persons with KS report that they have the intention of engaging in pleasurable activities and expect to enjoy these activities. The inability of initiating actions to actually plan or go to these activities is a broad description of apathy. Additionally, this study found evidence for reduced affective functioning, while Drost and colleagues [12] found impairments in social cognition.

This combination of apathy, impairments in affective functioning and trouble with social functioning can make it challenging to motivate persons with KS to be active in a long-term care setting. The next case example will highlight both these challenges, as well as the potentially positive result whenever the effort in motivating persons with KS pays off. It reports about group music therapy sessions that took place in a long-term care facility where eight male residents suffering from KS live together on a ward. They all have their own private room, but there is a communal living room in which they use their meals and watch tv. They are living together not by choice, but by necessity, and there is hardly any sense of commonality. Each one is living on his own little island, minding his own business. To prevent social isolation, everyone is encouraged to leave their own room and be in the living room. However, they cannot be forced, and getting them out of there into the common living room is quite a challenge. The caregivers need all their persuasion and convincing abilities. They ask the music therapist (the first author of this article) for help. As music is known to have a strong sense of community, the music therapist starts a group session with the residents of the ward.

Of the eight residents, three refuse to join the group, and five of them give me the benefit of their doubts. In group-sessions it is hard to find the common musical language, but at the same time it is not necessary to find this commonality. The personal preference of each resident is a nice starting point to get to know each other. The age-range of the five participants is 55-70 years old, and the musical taste varies from folk-music and hard-rock to classical, and everything between. In the first session I ask each of them to pick one particular preference song or where we can listen to all together. After each song I start a conversation about the song, about the time in which the song was popular, or about the lyrics. I try to involve anyone in this conversation, but some people

get away with little to no words at all. Some don't want to share their song, and this is okay as well. In the sessions that follow, we elaborate on the music preference of each participant. I also bring some small hand-percussion-instruments like shakers and woodblocks. While I play the guitar and sing songs of the artists that have been brought up by some residents, I encourage them to play along. After 5 sessions I notice that the residents have grown accustomed to the weekly music-sessions, and one of the three residents that did not want to come in the first place has joined the group. The 2 others still don't want to join, but since they are present in the living room while we do our group-sessions, they do join anyways without them noticing.

After 10 sessions I ask the participants if they would like to write a song together, a song about this group and about the ward where they live in. I explain to them how this works: we chose an existing song that everyone likes, we use the melody of this particular song, and we will rewrite the original lyrics of this song into our own lyrics. The residents seem to like it, and within minutes we have found a Dutch traditional song that everybody knows and likes.

I start asking each one of the residents to come up with a statement in which he says something positive about a fellow-resident. By doing so, each participant gets his turn, and each one of them gets his own personal lines in the song, written by a fellow resident. The lines don't have to be poetically correct; it can be simple thoughts. I will make sure the lines will fit in the song. After some hesitation, one of the residents starts, and after the ice is broken, more are following:

(John): *...I like it that Brian always pours us coffee during breakfast...*

(Alan): *...yesterday, John helped me opening the door when I came in with my walker...*

(Brian): *...the music that Bob likes is exactly my musical taste...*

(Bob): *...Alan gives me cigarettes when I run out of them. But he always make me pay him back (laughter.....)*

For the very first time the residents show their appreciation towards each other. During the process I suggest that in the last verse of our song they can come up with something positive about the nursing staff. They all agree to do so, and together they come up with a perfect last verse. I write down all the statements, and I make them fit into the chosen song, adding some general lines in between. In the weeks that follow we start singing the song all together.

The weekly group-sessions continue, and in the following months other themes to sing about come up. The nursing staff recognizes more involvement of and more social interaction between the residents on the ward. Unfortunately, these moments don't last very long, and the moments of agitation always lurk around the corner. The music-therapist compiles a playlist with songs that are often used during the therapy-sessions and advises the nursing staff to play this list in times of turmoil. This way the transfer from the therapy-room into the living-room on the ward might be a good way of having the residents cool down when needed.

This case report describes how the song-writing method has beneficial effects. It is a method whereby the therapeutic intervention consists of the process and product of writing a song with the clients. Baker and Wigram [13] present a provisional definition: 'The process of creating, notating and/or recording lyrics and music by the client and therapist within a therapeutic relationship to address psychosocial, emotional, cognitive and communication needs of the client' [13]. The therapeutic effect is achieved through the client's creation, performance and/or recording of his or her own song. The therapist's role is to facilitate this process, ensuring that the clients create a composition that they feel they can own and that expresses their personal needs, feelings and thoughts. The product is something that the client can revisit, share with others, and that can be evidence of self-expression [13].

The two case reports show that applying music therapy to persons with KS is challenging because of the deficiencies typical for KS. Literature about this specific subject is scarce. Van Bruggen-Ruffi [14] and Van Straaten [15] have written guidelines for music-therapy with KS-clients. Dingsh has developed an intervention based on the Empathic Directive Approach for people with KS [16,17]. However, the effect of this intervention has not been studied yet.

Van der Eng and Hakvoort have described a consensus-based music therapy micro-intervention for persons with KS who show apathic behavior [18]. The aim of this micro-intervention is to improve attention and activation by means of stimulating to take initiative. The article reports about the working mechanisms of music while playing familiar songs leading to free improvisation.

Navone [19] studied the effectiveness of a music therapy intervention in a patient with KS who suffers from depression. The conclusion that he drew is that music therapy treatment showed its effects on areas involved in emotional processing and regulation. Music therapy can therefore be an effective intervention for improving the quality of life and supporting caregivers in the management of KS.

The two stories above are examples of persons suffering with KS who benefit from music therapy. 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. Music may be the key to opening up again, both to oneself and to the people surrounding them.

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