

The unexpected impact of art on health

Art enchants, inspires, surprises and makes you think. But what are the values of art if the mind is failing? Research into Parkinson's disease shows that art has a potentially great impact on many areas of health. Art improves the analysis of Parkinson's and might enable an earlier diagnosis of the disease, it can help patients to express themselves and even positively influence the medical process in general. We dive into the complexity of our mind, and the sometimes unexpected contribution of art when the brain is failing us.

Figure 1: "A Silver Lining", painted by Mr. Robin Broadhead, a retired paediatrician who lives with Parkinson's disease. Mr. Broadhead: "I painted this sitting on the verge of the Blantyre to Mulanje Road on Tuesday 9th of February. Mulanje Mountain is the highest mountain in Malawi and rises 10,000 feet from the Phalombe plain as the last gasp of the Great Rift Valley. I have for many years climbed and admired the mountain and seen it in its many moods. I have seen Mulanje after storms and when it is dramatically illuminated from behind by the break of dawn and has glowed warmly facing the setting sun in the West. The Mountain defiantly crouches below a dark and forbidding storm cloud and yet the sun behind the cloud remains blazing and the silver of light surrounds it as a silver lining. This is our rainy season and is a time of green growth and hope. Hope for a good harvest in the future weeks." This painting serves to illustrate a novel therapeutic concept in the field of Parkinson's disease, namely that of silver linings: potential upsides that may sometimes come with this otherwise devastating diagnosis, and which may serve as a new way to support people living with Parkinson's.

The painting you're seeing in the background serves to illustrate a novel therapeutic concept in the field of Parkinson's disease, namely that of silver linings: potential upsides that may sometimes come with this otherwise devastating diagnosis, and which may serve as a new way to support people living with Parkinson's. In this edition of College Tour, Radboudumc researchers Bas Bloem and Blanca Spee share with us four lessons on the fascinating and multi-faceted relationship between art and Parkinson's disease.

Lesson 1; The unexpected values of art

One of the eternally discussed topics in human society is the search for the values of art, and indeed, the question of whether art has any value at all. While art obviously has monetary, personal, and aesthetic value, most arguments and affections for these artefacts go beyond the values that are directly addressed to these objects. Connected to any work of art are, among others, three essential aspects: creation, experience, and impact. All these aspects, when put innovatively into a medical viewpoint and pragmatic perspectives on health, might open up the truly hidden treasure trove of unexpected values of art. The first aspect connected to art involves the creation of a work of art or, more generally, an innovative product. This genesis comprises the development of a new, inspired, and useful production in various domains, but also the state of its creator. This state reflects socio-economic context, lifetime experiences, and, most importantly, the individual physiological condition and current brain functions of the creator. The painter and graphic artist Paul Klee in 1920: "Art does not reproduce the visible; rather it makes visible." The issue at stake here is; how can we transfer this idea into practical medical issues? We know that a creative process is a complex interplay between sensory, cognitive, and motor activity enabling artistic skills. In addition to these skills (which are partially learnable), the creative process requires a specific mindset, such as openness to diversity, curiosity about new experiences, and motivation to express. Likewise, neurologists see the consequences of how artists change their art production when brain functions change due to disease or lesion. The spectrum of changes doctors notice reaches from total loss of ability to make art to sudden emerging or intensified creative drive and productivity. Such phenomena are prominently visible in people with, e.g., Parkinson's disease.

Lesson 2; Where art and Parkinson's meet

Parkinson's is a common neurodegenerative disease, representing the world's fastest growing neurological condition. A hallmark component of the underlying pathophysiology is a progressive loss of dopamine in the brain, a key neurotransmitter that is also essential for coordinating creative brain processes and which is replaced in these people via medication, and sometimes via neurosurgical procedures. In an epidemiological study in the region of Nijmegen, 36% of the 903 questioned people with Parkinson's reported that since onset of the disease, they had experienced changes in their creativity, showing ups and downs, sudden emergence, drive, or loss of being creative.

Professor Bas Bloem uses these changes to evaluate the people he treats and says: "The potential of using art expressions as a mirror of state and individuals' conditions—or rather as a diagnostic tool—is amazingly nuanced. It can provide information about current health state, and changes in perceptive and motoric abilities. It can be used to optimise pharmacotherapy, and even raises awareness of psychological states, social situations, and personal feelings, which might be more difficult to express during the usual doctor-patient conversation. To my mind, addressing art in the examination room is a wonderful way to implement a personalised 'precision medicine' approach: addressing issues that matter most to individuals affected by a neurological condition, and seeing that person not as a patient, but as an individual with a unique background."

Doctors being aware of these unexpected values of art, that is, seeing the strength of art using analogies and expression as a medium of communication from the patient to the doctor, enable the potential to show more profound empathy while optimising and personalising treatment. Using art as an expression of inner state also allows a deeper understanding of, for example, describing the experience of pain or problems which are hard to put into ordinary language.

Some doctors that are open to this approach note that they save time during medical consultations, or even potentially avoid patient hospitalisations by seeing issues earlier. They also create the space for giving patients a voice and room for self-empowerment. Speaking about empowerment, such artists sometimes make doctors aware of processes relevant to research. For example, an acoustic

analysis of the violin play of an elite violinist with Parkinson's alerted researchers to the possibility that parkinsonian signs may be easier to hear than see, thereby opening up new possibilities for early and reliable diagnostic approaches.

Lesson 3: The impact of art on Parkinson patients

This has brought us to the effects of art on the one who experiences it. One of the fascinating features of art is its ambiguity and versatility. These features stimulate people to re-evaluate, change perspectives and opinions, accumulate novel knowledge, and even diversify strategies for gaining knowledge. Why? Because art shows us how something can be done, displayed, viewed, played, experienced, or lived differently. This departure from rigid patterns to diversity lets people innovate with profound influences of art on culture, knowledge, and questioning outdated, rigid paradigms.

Indeed, healthcare paradigms and medical education themselves are in urgent need of change. The Radboudumc, in a project led by Dr. Jur Koksma, has already pioneered by developing innovative art-based educational approaches. Medical students were asked to recognise the diseases of people in artworks. In addition to that, photographs are being used to train professionals to improve their diagnostic skills by taking a more open-minded perspective, and with their patients to optimise treatment behaviour, but also to make them aware of their relationships with the ones they care for.

Using art to deepen medical understanding and reporting state is nothing new; instead, this skill appears to have gotten lost over time, partially due to digitalisation and generalisation of medical systems. Jean-Martin Charcot, physician and founder of modern neurology, for example, was known for using

his artistic talent to represent the mental states of his patients in artistic representations. Leonardo da Vinci, as an artist and anatomist, brought a deeper dimension to the workings of human physiology and functional dynamics through his masterpieces.

Some professional organisations, such as the Radboudumc Health Academy, which is developing medical curricula in Nijmegen, became aware of the profound potential benefits of the holistic view artists cherish. They realised that the past artistic skills of doctors shall and can be merged with modern technology. Thus, once again, art can transform healthcare systems and medical education by helping to 'zoom-out' and make visible that 'health' and 'care' are, actually, two nouns that shall—in all their facets—be fostered.

Another element is to use art as part of the therapeutic armamentarium. Using Parkinson's disease as an example again, music and dance have now become evidence-based interventions to support and treat affected individuals. They promote mobility, are a palatable way of exercising, and stimulate social contacts. Together with wonderful dance groups in Friesland (the "Dansen op recept" programme), a carefully controlled clinical trial was performed, the results of which show that dancing helps to maintain a good quality of life.



Figure 2. A painting entitled "Kopzorg: Hoofdzaak" (liberally translated as: Mind matters: Key matters), created by mister Sibolt Hulshagen, a 56-year old man who has lived with Parkinson's disease since 2011, with apparent symptoms since 2007. In 2013 Sibolt received a neurosurgical procedure called deep brain stimulation. Sibolt: "Headache? Brainwaves! is a painting of the brain's functions, visualised in the right shape and place on the canvas. Together they form a complete set of brains."



The making of this painting is outlined in a compelling YouTube video:



And have a look at the monthly online broadcast of ParkinsonTV:



Lesson 4: When a patient becomes a creator

The final aspect is everything that surrounds the work of art as the artefact itself and its impact. Even though we maintain here the opinion that a work of art is not existing as an isolated thing but is what semiotician and writer Umberto Eco once called an act of co-geniality. According to him, every piece of art is experienced as a medium with the intention of the artist, the context, and the recipient's evaluation and interpretation. Nonetheless, people usually ascribe values to these objects of art. These values contain aesthetic and non-aesthetic (also irritating) appeals that can be used to, for example, enhance experiences among the observers. For this reason, more and more hospitals around the world are portraying art in public spaces, in corridors and in examination rooms, to ease the process of hospitalisation. Art as a salient object provides optimal stimulation, either in a calming or distracting manner, and can improve patient experiences in current healthcare. One of the newest programmes that is currently being developed in Nijmegen is a person-centred, art-based intervention programme as part of an Austrian-Dutch collaboration project called "Unlocking the Muse: Transdisciplinary Approaches to Understanding and Applying the Intersection of Artistic Creativity and Parkinson's Disease". Together with a team of neurologists, art researchers, transformative learning researchers, creative therapists, artists, and patient researchers, this programme aims to identify, engage, train, and retain the experience of being creative in people with Parkinson's. In this programme, the team intends to identify individual daily challenges that need meaningful creative solutions—might they be the wish to experience and enjoy playing a musical instrument, or finding practical solutions to lift a cup of tea on their own, which sometimes might be a challenge for these people due to physiological restrictions.

Dr. Blanca Spee, one of the leading project researchers in Nijmegen: "By working together in a co-creating manner, we want to address these challenges. The primary goal is to distil the active ingredients of creativity of each of them, train the skills, work on their mindsets, and let them become creators. Hereby, we hope to provide individually tailored, flexible, innovative, and improvisational solutions; solutions inspired by the beauty of the artistic realm and with a direct impact on health by improving quality of life in a self-empowered manner."

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