Every second person will experience a state of complete disconnection from their feelings at least once in their life, says the neuroscientist.

Figure 1Portrait of Matt Gwyther in the aesthetics of the depersonalization exhibition. Source - M. G.'s archive.

Translated from Slovakian to English using AI, original article:

https://dennikn.sk/3425166/stav-uplneho-odpojenia-od-svojich-pocitov-raz-za-zivot-zazije-kazdy-druhy-z-nas-hovori-neurovedec/

Neuroscientist Matt Gwyther from Anglia Ruskin University in Cambridge is studying how we perceive our own "self" and what people with disorders of self-awareness and identity experience. The so-called depersonalization, i.e., the state of detachment from one's own feelings and body, is not among the most well-known mental disorders, but it is estimated that approximately half of people will experience such an episode at least once in their lifetime. About one percent of these people do not just experience an episode, but a long-term condition.

"One participant in the study compared it to being drunk, where you feel slightly disoriented and things seem a bit unreal. It may sound like fun to some people, but if they could not stop this state, they would probably think twice about it," says Gwyther.

Since feelings of personal unreality are hard to describe to people who do not have these problems, the scientist decided to also share the study's outputs through visualizations. With the help of art students and artificial intelligence, an exhibition called "Life in a Dream" was created.

In the interview, you will also learn:

• why memories of a dream after waking up so quickly "drain" from our mind;

• what causes the mind to enter a protective zone without feelings and gets stuck there;

• what problems depersonalization causes in people's everyday life;

• why some scenes from the dreams of people with depersonalization look like imitations of Dalí or Magritte.

You are studying self-awareness in psychology. How do we perceive something as abstract as our own "self"?

When you ask people how they perceive their "self," they often talk about a certain feeling in the back of their head. They have a feeling that there is a clear identity that accompanies them throughout their lives. In science, it is perceived that the "self" consists of various layers. One, for example, is associated with memories and an autobiographical sense of oneself. Another layer is associated with emotions, language, or memory. And at a lower level, there may exist a deeper connection with the body as a basic sense of oneself. We probably share this basic bodily level of self-awareness with many organisms.

In our laboratory, we are very interested in these bodily signals and how they contribute to self-awareness. These include vision, hearing, various sensory modalities, heartbeat, gastric response to various stimuli, and so on.

Does our brain sometimes mix it up so much that we misinterpret its signals about who we are and where we are?

For example, in depersonalization, which we will talk about later, the brain may either ignore these signals or, for some reason, no longer trust them. Whether as a result of some past trauma, or other problems, you learn to distrust the signals from your body. It seems that there can also be a problem with how the brain interprets these signals. It could be because these experiences were very crippling in the past, so the brain learned to separate them, and a person becomes numb to these signals and to oneself.

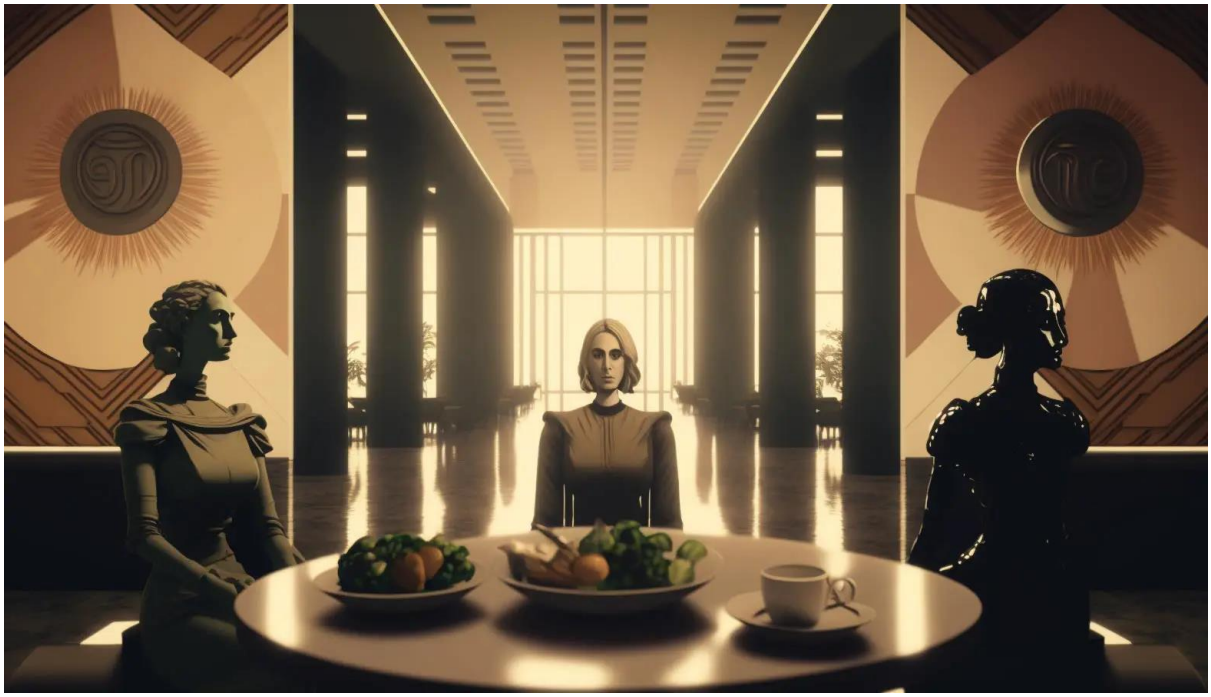

Figure 2Visualization of a dream of a person with depersonalization. Source – Xinyue Peng, Anglia Ruskin University.

The study of how we perceive our "self" also sounds a bit philosophical. Where is the border between neurology and philosophy in this area?

There is no clear border. Some of the leading scientists who study consciousness probably also consider themselves philosophers or work very closely with them. The idea of consciousness reaches far back in history across cultures. We often quote, for example, the French philosopher René Descartes, who said, "I think, therefore I am." So philosophers have an almost historical claim to the idea of consciousness.

Neuroscience has been interested in this topic for a relatively short time. Say, for 50-60 years we have had more sophisticated ways of measuring the brain at our disposal, which allow us a detailed look at its various areas. But it's precisely thanks to them that we've made much more progress during that time compared to the progress brought by centuries of thinking and talking. Now we also have experiments and data to point to.

You focus your research primarily on dreams that occur in moments between sleep and wakefulness. What is interesting about this phase?

Most of us spend about a third of our lives sleeping. During this period, we experience things in dreams that we sometimes remember and sometimes don't, with the most common and memorable ones occurring in the rapid eye movement (REM) phase. But we also dream during other periods of the sleep cycle, which are less explored. That's why we chose what's called hypnopompia, which is a strange state between sleep and wakefulness. It can be a confusing time because you are as if between two worlds. Your brain begins to connect "online", your body starts waking up from paralysis, so you can experience strange bodily sensations.

Figure 3Neuroscientist Matt Gwyther (on the left). Photo - M.G. archive.

During this moment, we usually forget what we dreamt about. Has neuroscience found an answer to why our dream experiences "drain away" so quickly upon awakening?

People often describe it exactly like this - as if these memories were floating and draining away. I don't know exactly what is happening at the neural level, but the assumption is that if you wake up and start moving, your brain basically switches itself to a different mode. Chemical processes associated with waking up start to take place in it, and what you dreamed no longer makes sense. I would compare it to trying to remember things that happened when drunk or in some other altered state. In the study, we therefore tried to have people immediately record their dream on their phone upon waking up. Before they start moving, get up, go to the bathroom, and so on. Because these are exactly the moments when even a rich dream experience disappears within a few minutes.

Why do we sometimes dream of nice things and sometimes wake up tired from a nightmare? What does that say about our mental state?

From some research, it appears that there is a connection between more frequent nightmares and some kind of daily stress. But there is also ongoing discussion about whether it can't work the other way around. That a waking life in depression, anxiety or stress alternates your body with pleasant dreams, in which we can recover a bit.

I think it could be both. Sometimes there is a connection between stressful life events and scary dreams, but then there is also a kind of compensation when people feel a little better after waking up. A lot of things are happening in the brain during dreaming, which we still do not understand, so I cannot give you a more definitive answer. Dreams can be influenced by processing difficult life events and emotions, but also by digesting heavy food that you had for dinner.

In the study Life in a Dream, you focused on the experiences and dreams of people with depersonalization. It is a disorder in which they feel disconnected from themselves and their emotions, sometimes to such an extent that they feel they do not exist. This is probably quite challenging to imagine for a person who does not have such problems.

Yes, not feeling real, our body "not belonging" to us, or looking in the mirror and not recognizing ourselves, are unimaginable things for many people. Patients with depersonalization when describing their states therefore often used metaphors. For example, they said it was as if they lived behind a frosted glass board, saw things in lower resolution, and so on. One of the study participants likened it to intoxication, in which you feel slightly disoriented and things seem a bit unreal. For some people, this may sound fun, but if they could not stop such a state, they would probably reconsider.

Some symptoms are also very individual. For example, some people cannot drink caffeine because of depersonalization, as they feel completely out of it after drinking it, while others are completely numb to it. They can drink double espressos and feel nothing.

One of the dreams representing an abnormal body experience in a dream, transformed into virtual reality. Source - YouTube/Kelsey Wu. Watch on YouTube.

What usually triggers such states?

It could be triggered by a trauma or a very stressful event, for example. The mind after it enters a "protective zone", in which you detach from your experiences to distance yourself from the unpleasant stimulus. Some people described it as if you were in an accident or received very bad news over the phone. For a moment you are completely calm and feel separated from the information you received, because your mind cannot cope with the emotions and panic. For most people, this is just a strange and unpleasant experience that comes and goes, but about one percent remains in this state. They simply get stuck in this state of disconnection from themselves and their emotions.

Sometimes such a state can also occur as part of burnout from long-term stress. If you have high demands on yourself and are under pressure, your emotions may turn off at one moment. And then there is the path of psychotropic substances. Some people had bad experiences with marijuana

when the feeling of alienation from their own body, which THC sometimes causes, did not subside even after a long time. As if they lacked the mechanism that would return them from such a state.

The warning signs of impending depersonalization are diverse, but if people start to feel chronically somehow unreal, they wake up in the morning, feel they do not belong to their body, look at themselves in the mirror and feel disconnected, then this is something they should further address.

What problems does depersonalization cause people in everyday life?

They are often overall emotionally numbed. This leads to alienation from others, but also from themselves. So we see people with these problems who are very depressed, tend to experience anxiety, feel misunderstood, can't find help, and their daily life simply becomes unpleasant. People with depersonalization also spoke about difficulties in romantic and intimate relationships because they struggle to experience love or even recognize their partner. For people with severe forms of this disorder, daily operations and maintaining relationships or jobs are really difficult.

I first heard about depersonalization when I was reading about your exhibition. Despite this, statistics show that about half of adults have experienced at least one episode of such a feeling of isolation from themselves during their lifetime. Why is this problem so little known and unexplored?

Because we have only been recognizing it for a relatively short time. Such problems were generally referred to as psychoses for a long time. The symptoms can resemble the much more familiar schizophrenia, but even it is not fully understood yet. The people with depersonalization that we spoke with said that before the age of the internet, it was very difficult for them to understand what was happening to them and to find at least some help. Some were misdiagnosed, doctors told them they should rest, that they might have Lyme disease, and similar things.

Today, we are beginning to understand it a bit more and we have more resources on the topic. There are also various support organizations and in the UK we have one specialized center for people with depersonalization. It's not much, we still don't know a lot and our research is underfunded, but it's getting better.

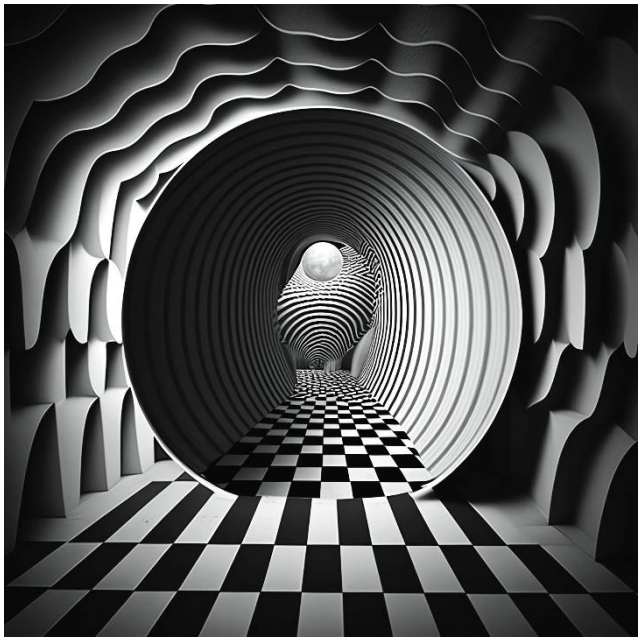

Figure 4. Visualization of false awakening during a multi-layered dream. Source – Jewel Chang, Anglia Ruskin University.

Can we treat this disorder?

Sometimes antidepressants or anti-anxiety medications and therapy are used. But I have not found any specific pharmacological or psychological intervention directly for depersonalization.

Can your research contribute to this somehow?

Our first study on dreams was exploratory. This means that we investigated whether depersonalization affects the perception of oneself during dreams as well as during wakefulness. We asked people to describe their dreams and whether the severity of depersonalization symptoms affects the extent to which they trust their body signals. It turned out that the more severe the symptoms, the less they trust their bodies. So now we are exploring how to increase trust in the body, for example by grounding through movement-based exercises, specific virtual reality interventions that may amplify body signals, and so on.

Descriptions of feelings and dreams of people who have been living with this disorder for a long time were an important part of my research, but this project was not just academic. People who have such problems often search for information on the internet and encounter studies that either use very philosophical language about self-awareness or neurological language that is often inaccessible to them. So we wanted to create something that would be more accessible, more human, and three-dimensional.

So, you chose art to describe how people suffering from depersonalization feel?

Yes, studying depersonalization from a theoretical perspective and progress in understanding is one thing, but it seemed to me that we lacked a clearer picture of what people with depersonalization experience. Dreams in general are hard to describe in words, but we have a long tradition of studying dream imagery and art. For example, Salvador Dalí, René Magritte and other artists tried to do this within surrealism. So art seemed to us the best way to point out the experiences of these people. Some things simply cannot be spoken of in scientific terms, and that is why we decided to create an exhibition of works as part of the study's outputs to describe them.

Last year, I organized a small exhibition where I used descriptions of people's dreams from our study. We collected about a thousand dream reports and I tried to bring them to life using artificial intelligence tools. Then we got the opportunity to collaborate with Master's degree illustration students, also offered by Anglia Ruskin University. The idea was to teach the students something about depersonalization research, artificial intelligence, and show them the reports from the study. They would then use their skills to create artworks inspired by the experiences of people with this disorder. The collaboration lasted about three months and at the end an exhibition took place, the outputs of which are also available online.

Did the participants of the study have the opportunity to express whether the visualization corresponds to their feelings?

Unfortunately, we didn't have this feedback dialogue, although we also considered it. The participants recorded the research data a year before we even started working with the artists. So we only started from the descriptions of feelings and experiences we already had available.

But it would be an interesting step. We are also considering that involvement in such a dialogue could have a therapeutic effect. By discussing such visualizations of their dreams and experiences created by artificial intelligence with people, we might be able to contribute to them repeating,

connecting, or understanding various unconscious motives found in them. This topic is really interesting for me in the future as well.

The resulting works you presented are visually captivating, but also quite disturbing. Which ones do you like the most?

The students did an amazing job, so it's hard to pick one thing. But for example, I really liked a series of twenty animated moving images that depicted aspects of human experience of their body and a narrative about a dream in which it somehow shattered. The animations were projected onto a screen in quite high resolution, so you could see each image moving independently.

A friend told me it was disturbing for him because so many things were happening at once that he couldn't concentrate. That was also our goal, as we hoped that people would understand this disorder and its manifestations a bit more through the exhibition. The nature of depersonalization is very unpleasant, so I think it's right when people left the exhibition with a somewhat uncomfortable feeling.

Figure 5 – Jinpu Zuo, Anglia Ruskin University

Some visualizations aesthetically resembled the works of the aforementioned surrealists. Could these painters have been inspired by their own experiences with such a disorder, or rather, did surrealism as an artistic movement help people describe their experiences?

It's probably a bit of both. Based on memoirs and found notes, it's said that the author of the famous Scream, expressionist Edvard Munch, could have had experiences with depersonalization. Surrealists like Salvador Dalí and René Magritte were very interested in dreaming, and the boundary between waking and dreaming was probably blurred for them. This movement came at a time when many conventions in art were being questioned, and people began looking for some deep inner aspects of human beings, which significantly overlapped with the then research of psychology.

The second part of the question is interesting because certain norms or ideas about dreaming and surrealism are deeply rooted in our minds. So they also influenced how we think about our own dreams. For example, when the leader of the illustration course first brought up the question of the

visual aspect of dreams, many students referred mainly to Dalí. But she further asked if anyone really dreams like that, and it turned out that the dreams of most people do not look like surrealist paintings. So we are greatly influenced by culture, and our minds tend to interpret dreams towards known artworks.

Art students used artificial intelligence in their work, which is often criticized today for threatening their livelihood. Did they have a problem with that?

We worked with art school students who wanted to look at these tools with an open mind and learn to work with them. Some were enthusiastic about this technology, some were skeptical, but they realized that this is reality, these tools will not cease to exist and they wanted to learn to control them so as not to lose any competitive advantage. So I think it was pragmatically useful for them.

Matt Gwyther

He is a neuroscientist. He works at Anglia Ruskin University in Cambridge. He focuses on the bodily basis of self-awareness, altered states of consciousness, and neuroscience of consciousness. He currently works as a research assistant on the project Life in a Dream: Experiencing the Body and Self During Wakefulness and Dreams in Depersonalization. In it, he explores how neurophysiological states can influence the experience and self-presentation during wakefulness and dreaming.