

KINESIS

Issue 15



Mental Health

Special Issue

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LETTER FROM THE EDITOR

We extend a warm welcome to Kinesis Magazine's 15th issue! We start off this year with a special issue focused on mental health. In part, this issue serves as a homage to an old one but remains a testament to the weight this subject carries and the importance of coverage of this area. Our unique editorial and artistic style aims to do justice, not only to the words written within our pieces but also to the delicacy of the topics at hand. This issue deviates from some of our other issues, as we include a few more personal and emotive articles, drawing from experiences yet still founded in scientific fact. And, it goes without saying that none of this would have been possible without the amazing team at Kinesis, for whom I am forever grateful.

We decided that we needed to start off the year with a strong focus. As we get ever closer to the bicentenary of UCL, we wanted to create a special issue that showcased the breadth and depth of topics that mental health could cover. A variety of ideas, along with editors and artists, collaborated to produce this special edition. Learning everything that we have from the past year, both from our successes and failures, we deliver our first and possibly our most emotionally charged issue to date.

We hope this issue entangles you in the field of mental health. From the diverse articles on offer, we cover how seasons affect our mood and wellbeing, establishing the mechanism behind the condition, and the treatment available to help the 2 million patients who have seasonal affective disorder in the United Kingdom. From running to help your mood to the familial patterns of mental health in families across the world. Our hope is to illustrate the sheer commitment some have to their fields and how even the smallest of actions can have a domino effect for those wanting relief – even if it is for a brief moment.

Speaking personally, this society has been an integral part of my wellbeing since starting at UCL, all the way back in 2019. I can remember every high and low this publication has had, every time a committee member has stepped in to help someone when they were struggling and the sheer emotional weight every one of the five committees I have had the pleasure of being a part of has carried, even when it was difficult to do so. Kinesis helped me remain hopeful, not just for science journalism, but for the future of science as a whole. There is no limit to the imagination, creativity and passion every member has at Kinesis, and to say that student media at UCL has been elevated by this team and everyone before is a gross understatement.

I extend my heartfelt gratitude to the incredible committee I am honoured to be a part of. All of this is possible because of all of our contributors on this issue. It is my privilege to work with all of you.

Happy reading!

Ally Shaw
Managing Editor

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BEYOND FORGETTING

Psychiatric Symptoms in Dementia

MILLY MAK

ARTIST: SAM PATEL

One morning, a daughter finds her mum talking to someone in an empty kitchen, saying that she's taking register of all the children in the room. Despite her daughter's reassurance that the children don't exist, she's convinced she can see them. She has Lewy body dementia, and it is causing hallucinations.

Introduction: The Neglected Half of Dementia

In an aging population, dementia is becoming increasingly common, with over 55 million people worldwide living with dementia today. Dementia is described as cognitive decline caused by a neurodegenerative disease. You may be familiar with the cognitive symptoms associated with dementia, such as memory loss and disorientation. These symptoms are disabling on their own, but many people forget that the same neurodegenerative disease can also impact psychiatric function, which can include hallucinations, delusions, apathy, and even social inappropriateness. These disproportionately affect some

dementias more – psychiatric symptoms are embedded in the diagnostic criteria for dementia with Lewy bodies and frontotemporal dementia. However, 97% of elderly with dementia develop at least one psychiatric symptom within 5 years of diagnosis. For patients and their carers, they are often even more difficult to cope with than cognitive impairments, as they can impact relationships and motivation. Among the many behavioral and psychiatric changes, psychotic symptoms are a clear window into how dementia



reshapes perception and identity.

Hallucinations and Delusions: A Vivid Manifestation of Dementia

While psychiatric symptoms in dementia range from apathy to agitation, psychotic symptoms like hallucinations and delusions are some of the most devastating ways dementia can impact the mind. Psychotic symptoms, which are perceptual and thought content disturbances often associated with schizophrenia in psychiatry, are common in dementia with Lewy bodies (DLB) and can sometimes occur in Alzheimer's disease and frontotemporal dementia. Delusions and hallucinations in dementia have patterns that are distinct from schizophrenia. DLB patients often get suspicious, such as suspecting a spouse is cheating or someone is stealing from them. They also sometimes experience the Capgras delusion, where they believe someone has replaced their spouse or relative. As for hallucinations, they experience animate visual hallucinations – seeing humans or creatures when they're not there – more often than auditory “voice” hallucinations.

Why do these symptoms occur? A meta-analysis identified that degeneration of the fronto-temporal areas of the brain – which assimilates information – are associated with the formation and maintenance of delusional beliefs, while the frontal occipital area – responsible for sensory processing and predictive coding – is linked to hallucinations. This might show that in these forms of dementia,

neurodegeneration impedes the ability to process the sensory world normally, causing them to misperceive or “guess” items in their field of sight. Along with impaired information reasoning, the brain might produce false visual images or ideas in an attempt to understand the environment.

Although it may be frustrating for carers, family, and friends, these delusions and hallucinations are reality to patients. It is not helpful to convince them otherwise; instead, reassuring and distracting them may be more comforting.

Conclusion

There are still many limitations to our understanding of this topic due to limitations in research tools and insufficient clinical screening. Attempts to treat these symptoms with psychosocial therapies as well as pharmacological treatments have been made, but without much success. In addition to psychiatric symptoms, behaviour and mood changes can also arise from the distress of the condition itself, due to reduced independence, inability to participate in social activities, or breakdown of relationships. It is important to raise awareness of these symptoms to better support patient quality of life, to predict worse outcomes and disease progression, and to develop treatments.

We often think of dementia as a story of forgetting. But hallucinations, delusions, and mood changes remind us that dementia also transforms the emotional and perceptual worlds people live in. Recognizing these symptoms is essential for understanding the lived experiences of dementia.

ADDRESSING MENTAL HEALTH WITH *bioengineering* Yay or nay?

PATHRAKORN KURATANA
ARTIST: MEERA MANIAR

Introduction

According to the British Medical Association, the proportion of adults aged16-74 receiving mental health treatment has risen from 23.1% in 2000 to 39.4% in 2014. In response to this upward trend, new technologies have emerged - particularly in the field of bioengineering. Bioengineering is "the application of engineering, life sciences and mathematical principles to address problems in fields involving living systems - biology, medicine, health care and more". With the demand for mental health treatment increasing, bioengineering may be one of the ways to tackle this problem.

Current mental health treatment

There are a range of treatments currently in clinics, from medications like antidepressants, to cognitive behavioural therapy (CBT). However, how effective are they really? Trials have demonstrated that pharmacotherapy for social anxiety disorder and generalised anxiety disorder have given response rates of 52% and 56%, respectively, compared to 32% and 41% with a placebo. This implies that although there is a response rate increase compared to one another, it is not significant. Furthermore, a 2020 NHS survey revealed that only 44% of respondents found their medication helpful. This indicates new measures are needed to help fill in the gaps in current mental health treatment.

Precision psychiatry: Diagnosing psychiatric disorders

Classification of mental health disorders in a clinical setting is a crucial step that allows patients to start their correct treatment. The Diagnostic and Statistical Manual Mental

Disorders 5 (DSM-5) and the International Classification of Diseases 10 (ICD-10) have been found to be some of the most useful diagnostic tools for psychiatric disorders. However, where they lack in specificity and precision, personalised psychiatry could make up for through Precision psychiatry.

Precision psychiatry is the tailoring of medicine and treatment to a specific person's needs by looking at inputs such as clinical symptoms, individual and environmental risk factors, biomarkers, and more. Through analysis with artificial intelligence and machine learning, diagnosis, disease susceptibility, treatment selection and dosage, and prognosis could all be improved.

Bioengineering would be used to collect more quantifiable data through molecular, genetic and structural markers. By measuring the levels or specific molecular markers associated with specific diseases within patients, accurate diagnoses can be made. For example, interleukin-6 levels are elevated in patients with schizophrenia and bipolar disorders, compared to healthy controls. This is similar to genetic markers

as studies demonstrate that people with DiGeorge syndrome, which is a microdeletion on chromosome 22p11.2, have a higher risk of developing schizophrenia. Furthermore, the use of functional Magnetic Resonance Imaging (fMRI) to understand brain areas and their association with psychiatric disorders would additionally benefit the diagnostic process. MRIs have demonstrated that enlargement of the lateral ventricles, and reduction in hippocampus size are associated with depression and schizophrenia, and are linked to impaired brain

function, such as cognitive impairment or reduced functional efficiency.

In short, the efficacy and applicability of these technologies have to be evaluated before being implemented into clinical practice but have a high potential in helping with a more precise diagnosis of mental health disorders.

Treating mental health with bioengineering

Technologies such as repetitive transcranial magnetic stimulation (rTMS) and deep brain stimulation (DBS) are increasingly popular approaches for mood-based mental health disorders. Neuromodulation technique rTMS aims to treat major depression (MDD) and treatment resistant depression (TRD) by stimulating focal cortical brain regions with electrical currents by using a magnetic field. DBS, on the other hand, reportedly overrides limbic-cortical connection hyperactivity responsible for MDD. These therapies would allow mood regulation, overall benefiting patient experience. However, proceeding with these therapies requires careful consideration. DBS has side effects such as seizure, stroke, and headache and does not necessarily cure one's condition; rTMS similarly may cause scalp discomfort, pain and headache but requires repetitive treatment.

Closed-loop neuromodulation devices are an additional therapy that is being explored for the treatment of epilepsy. A patient's neural state is monitored and treated through delivering and adjusting therapeutic electrical stimulation. This technology could potentially allow an instantaneous self-regulation of the emotional needs of a person but could result in hardware complications.

Most of these technologies are still undergoing trials, demonstrating that they are more for future rather than present application.

Concerns regarding bioengineering shaping mental health

When bringing about new technology, the ethical considerations of both its research and implementation within clinics are incredibly



important.

Aspects to take into account include:

- **Purpose:** Why is the technology being used and how necessary is it?
- **Normality:** What will the parameters of 'normality' be? Who sets this?
- **Consequences:** What are the long-term impacts? Safety?

All these together will start the basis of ethical points to be addressed but further discussion and agreement will need to be taken into consideration to develop these further.

Yay or nay?

Considering current treatments and bioengineering development, is bioengineering for mental health a yay or nay? There are so many areas that bioengineering can be applied in regarding mental health, both for diagnosis and treatment. It would potentially allow a better treatment path for patients and improve the current clinical market. Although there are large benefits, if concerns regarding the implementation of technology can not be addressed clearly and fairly, the usage of bioengineering for mental health should not yet be implemented. In addition, treatment should be tailored towards each patient after considering the risks and benefits.

LIKE MOTHER LIKE DAUGHTER?

How our mothers' mental health during pregnancy could shape us for life

CLAIRE BROTEA
AHMAD BILAL

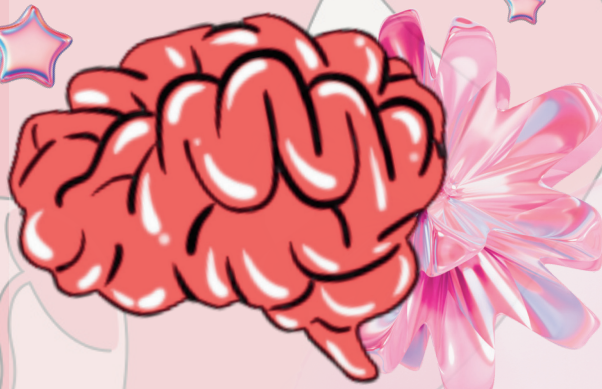


Stress and anxiety are increasingly universal features of modern life. In response, millions of dollars have been invested in funding charities, research initiatives, and treatments aimed at understanding and managing these conditions. Yet despite these efforts, anxiety remains a pervasive issue: one in five adults in the United States experience it. For many, especially younger individuals, identifying the root cause of their depression or anxiety can often feel elusive. Even with growing awareness and the resources available, we have a tendency to dismiss these feelings as 'normal'. But the reality is far more serious. Inadequate mental health support has profound and far-reaching consequences. For instance, 1 in 20 women of childbearing age suffer from anxiety, and 25% of women in the 'Western' world report heightened levels of anxiety and stress. These statistics raise an important question - what is driving this widespread issue? Although anxiety isn't solely rooted in genetics, there may be deeper explanations as to why this condition seems to plague every generation. Recent research has begun to explore one compelling possibility: maternal stress during pregnancy may play a role in programming long-term mental health outcomes for the next generation.

Up to 15% of pregnant women suffer from depression. This is often due to hormonal mood fluctuations, physical discomfort, financial and familial problems, or anxiety about pregnancy complications. The range of triggers are numerous and complex, and so are the potential consequences for fetal development. The prenatal period is a crucial window for neurodevelopment, during which the foetus' brain is highly sensitive to the mother's environment. The brain begins growing quite early in the third week of pregnancy, and grows extremely fast in the third trimester. Because of this vulnerability, scientists have proposed the fetal origins hypothesis - the idea that

prenatal environmental exposures, such as the mental state of the mother, can alter the physiology of a fetus in utero and cause long lasting effects.

Evidence supporting the foetal origins hypothesis is compelling. For instance, one study in particular shows that a deficiency in essential fatty acids in the mother's diet during pregnancy can lead to a lower birth weight in the child, which is associated with a reduction of cognitive and motor function. A striking historical case comes from the Dutch Hunger Winter of 1944: children of pregnant mothers at this time had a two-fold increase of developing schizophrenia and other personality disorders. These examples highlight how physical environmental factors from mothers can affect their children for a lifetime. But what about more abstract factors, such as a mother's mental health during pregnancy?



Cortisol, the body's primary stress hormone, plays a large role in the body's stress response. When a pregnant woman is experiencing stress, cortisol levels in her body rise, and excess cortisol have been shown to disrupt foetal brain development. This disruption can negatively impact the child's immune response to diseases, increase the risk of high blood pressure and cardiovascular diseases, and increase the child's sensitivity to stress. One study found that middle-aged adults who were exposed to maternal stress during fetal development had elevated

pro-inflammatory markers - biological signs of poor stress regulation - and experienced higher rates of depression and psychosis throughout their life.

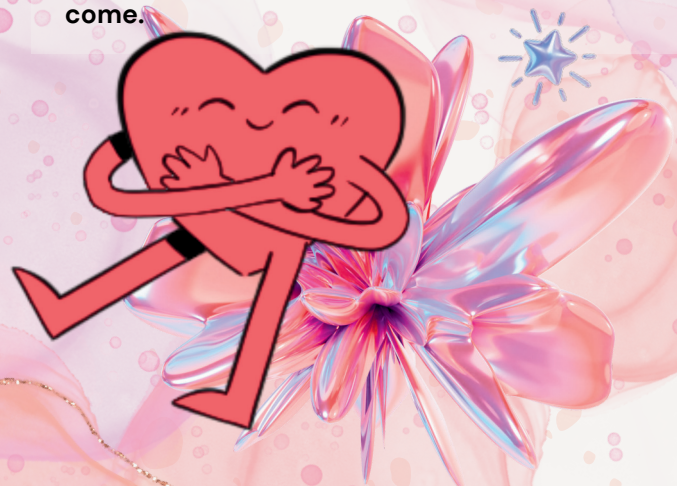


This is because anxiety in pregnant women affects the brain development of babies, as mentioned before. Neural connection formation can change, causing various neurodevelopmental disorders and poor social and emotional behaviors in children. Of course, the postnatal environment also affects the mental health of these children, regardless of whether the mother had experienced stress during pregnancy. However, case studies have shown that even if a child has been born into a safe environment where stressful environments are rare, if the mother experiences high levels of anxiety during pregnancy, that child is predisposed to stress hypersensitivity. As a result, this causes nervous system dysregulation as they grow up.

Resting-state functional magnetic resonance imaging (rs-fMRI) has become a powerful tool for identifying how fetal neurodevelopment is affected by maternal stress. rs-fMRI analyses developing neural circuits in fetuses at different stages of development, allowing insight into how neural connectivity changes with time. Using rs-fMRI, maternal distress was correlated with decreased hippocampal and cerebellar volumes, and an overall decreased newborn head circumference at birth. The same study also found reduced levels of brain metabolites like choline, of which is also diminished in adults who suffer from anxiety disorders. One important pathway through which maternal mood influences fetal development is The hypothalamic-pituitary adrenal (HPA) axis - the central regulatory system for physiological distress. When exposed to high levels of cortisol, the HPA axis can become dysregulated which increases the child's risk of developing ADHD.

It is also interesting to consider how different sexes have different outcomes from their mother's poor mental health during pregnancy. Research has continuously found that girls are born with a larger amygdala if their mother experienced severe anxiety during pregnancy. This enlargement has not been observed in boys. In affected girls, the larger amygdala shows weaker connectivity to other parts of the brain, thus increasing the risk of poor stress perception.

This isn't about placing blame on our parents for our mental health struggles - it's far from it. After all, we all know that how we manage stress plays a significant role in our well being. Techniques like mindfulness, cognitive behavioral therapy, and insight-oriented therapy are proven to significantly reduce anxiety. Similarly, surrounding ourselves with supportive friends and family can lower cortisol levels and foster emotional resilience. For pregnant women, the stakes are even higher. The mental health of expectant mothers is not just a personal issue - it can have generational implications. Yet, discussing mental health during pregnancy remains a taboo, often dismissed with harmful stereotypes such as 'it's just hormones'. This attitude undermines the very real challenge pregnant women face and discourages them from seeking help. Routine mental health surveillance during pregnancy, and indeed for everyone across all stages of life in our communities, is essential. Through multiple groundbreaking discoveries it is clear that the mental state of a mother can affect her child's development. We have the potential to break generational cycles of this by addressing and alleviating this mental stress. Supporting women today could mean healthy futures for their children and generations to come.



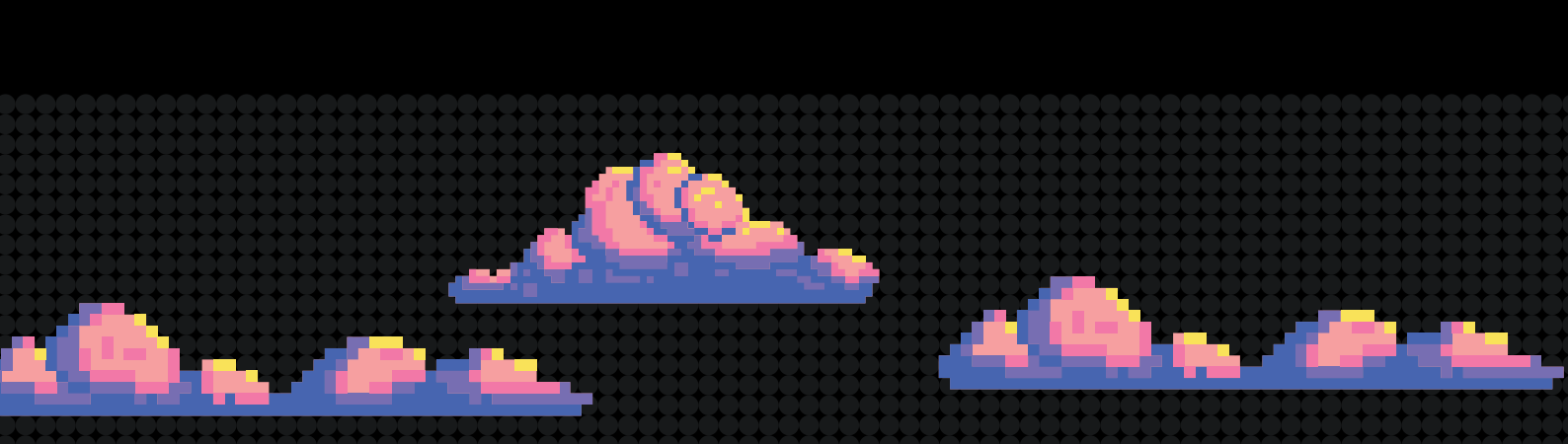
Impact of Queer Representation on the Mental Health of GAYMERS



In this digital age, video games are an increasingly popular way to spend your free time – and for good reason. They offer immersive storytelling, stunning visuals, and an opportunity to connect with others. For many, they also serve as a powerful means of escape, and a way to cope with mental health challenges.

While the relationship between gaming and psychological wellbeing has been extensively studied, much of this research overlooks the LGBTQ+ community. This omission is significant, as queer individuals are at high risk of minority stress – the “physiological and psychological effects associated with the adverse social conditions experienced by [...] stigmatized social groups” – through events like familiar rejection, bullying, and discrimination from healthcare providers.

This greatly increases the risk of developing mental health issues like anxiety and depression, as well as damaging behaviours such as substance abuse, self-harm and suicide. Many therefore turn towards video games, especially ones with respectful and positive queer representation, to alleviate mental health difficulties. The 2024 publication of the Level Up! Project summarises recent findings, highlighting the meaningful impact of queer representation in video games on queer mental health:



One of the most widely studied aspects of queer identities and video games is the avatar. In customisable games such as 'The Sims 4', players can customise characteristics of their avatar, including their name, pronouns, sexuality, physical traits, fashion sense, and behaviour. For queer 'gaymers', this ability to express themselves through avatars can be incredibly affirming. It allows individuals to explore their gender and sexual expression in a relatively safe environment, where there is a low risk of judgement, discrimination, or violence from others. This can strengthen their sense of identity and improve their wellbeing. Additionally, for those who are already confident in their identity but live in unaccepting environments, avatar games can offer a much-needed, affirming escape.

Beyond avatar games, storyline-driven games can also provide powerful representation and improve queer mental health through accurate and tasteful representation. 'The Last of Us' series, for example, explores a complex queer relationship amongst incredibly dark circumstances, as well as featuring the story of a transmasculine character who was banished from apost-apocalyptic cult because of his identity. Seeing queer characters portrayed with complexity and humanity fosters a sense of belonging in gaymers, communicating that their identities are valid and their stories worth telling. Additionally, through being fans of the same franchise, queer individuals can become part of an affirming community, something which is particularly important for those living in remote areas where they are the only queer person they know.

Importantly, well-developed queer characters not only benefit LGBTQ+ players but also non-queer audiences. By challenging stereotypes and portraying queer people as human, video games can promote empathy, reduce prejudice, and contribute to wider social acceptance.

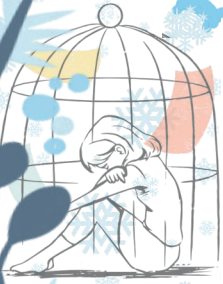
Despite this progress, there is still a long way to go. Stereotypical tropes, like the flamboyant gay sidekick, persist. Representation of trans, intersex, and queer people of colour also remains limited. Continued improvement in these areas can lead to greater normalisation of queer identities, deeper exploration of gender and sexuality, and increased self-acceptance, ultimately contributing to better mental health for many queer individuals.

Teni Gomez
Artist: Jin Yu



Winter is Coming

Exploring Seasonal Affective Disorder



Seasonal Affective Disorder (SAD) is sometimes known as “winter depression” as symptoms become increasingly apparent during the winter months. Although less documented, some individuals may have SAD symptoms during the summer instead.

Symptoms and Diagnosis

SAD is characterised by a recurring pattern of depressive episodes that coincide with specific seasons.

Common symptoms include:

- Persistent low mood
- Loss of interest in activities
- Low energy and fatigue
- Sleep disturbances, e.g. oversleeping
- Changes in appetite, e.g. craving carbohydrates
- Difficulty in concentration

To diagnose SAD, clinicians often use the DSM-5, which requires at least 2 consecutive years of seasonal depressive episodes without non-seasonal episodes (NHS)

The History of SAD

The term ‘Seasonal Affective Disorder’ was first coined in the early 1980s by Dr. Norman E. Rosenthal, a psychiatrist and researcher at the National Institute of Mental Health (NIMH). Dr. Rosenthal and his team were investigating the link between seasonal changes and mood disturbances, inspired in part by his own experiences of mood shifts after moving from South Africa to the United States.

In 1984, Rosenthal published a landmark study in the journal Archives of General Psychiatry, which formally described SAD as a distinct clinical condition. His team explored these observations in 12 individuals who exhibited recurring depressive episodes during the summer months. In a subsequent paper, he analysed a group of 60 participants, evenly split between those with summer SAD and winter SAD. While both groups satisfied the criteria for clinical depression, they displayed distinct symptom profiles. The winter group described themselves as “very lethargic”, like hibernating animals. The summer half, however, reported irritability, restlessness, insomnia and reduced appetite. (Rosenthal et al, 1987)

This research not only brought widespread attention to the phenomenon but also highlighted the potential effectiveness of light therapy as a treatment.

Rosenthal's work laid the foundation for subsequent research and the inclusion of SAD in the Diagnostic and Statistical Manual of Mental Disorders (DSM).

The Science behind SAD

While the cause of SAD is linked to seasonal changes, the precise etiology of SAD is not fully understood. Nevertheless, researchers believe the disorder stems from both biological and environmental factors.

The circadian rhythm, often referred to as the body's internal clock, regulates sleep-wake cycles, hormone release, and other essential bodily functions. During the fall and winter months, shorter days and reduced sunlight can desynchronize this internal clock, leading to disrupted sleep patterns and mood regulation. Research using light therapy has demonstrated that re-aligning the circadian rhythm can alleviate SAD symptoms.

Serotonin is a neurotransmitter critical for maintaining mood balance. Exposure to sunlight is known to increase serotonin levels through pathways involving the retina and brain. Reduced sunlight in winter can lead to lower serotonin activity, contributing to depressive symptoms. This connection is supported



by studies showing that individuals with SAD often exhibit lower serotonin transporter binding in their brains during winter months (Praschak-Rieder et al, 2008; Tyrer et al, 2016)

Melatonin, a hormone produced by the pineal gland, plays a vital role in regulating sleep. Its production is influenced by light exposure, with darkness triggering its release. During winter, prolonged darkness can lead to elevated melatonin levels, causing increased lethargy and difficulty waking up in the morning. Overproduction of melatonin is thought to amplify the fatigue commonly experienced in SAD.

There is evidence that individuals with SAD may have genetic predispositions affecting serotonin and dopamine pathways, making them more sensitive to seasonal changes. Variants in genes such as SLC6A4, which is involved in serotonin transport, have been studied in relation to SAD susceptibility (Tyrer et al, 2016; Norgaard et al, 2017). Neuroimaging studies also suggest differences in the brain structure and function of those with SAD, particularly in areas like the hypothalamus and prefrontal cortex (Borchardt et al, 2015). A family history of depression or other mood disorders can further increase susceptibility (Stamenkovic et al, 2001).

In addition to biological mechanisms, environmental factors like geographic location and lifestyle changes play a significant role. People living farther from the equator experience more pronounced seasonal light variations, increasing their risk. Social isolation and reduced physical activity during colder months can further compound the condition.

Treatment and Interventions

Light therapy

The National Institute for Health and Care Excellence (NICE) recommends managing SAD similarly to other types of depression, including treatment options like talking therapy, cognitive behavioural therapy (CBT) or medication. However, increasing evidence has shown that light therapy can be effective in relieving symptoms. This involves exposure to bright light for around 30 minutes in the

early mornings, typically through a special lamp called a light box that simulates natural sunlight. This can help reset the circadian clock, reducing melatonin production and boosting serotonin production. Several studies have supported phototherapy in alleviating depressive symptoms and can be considered as a clinical therapy of treatment for SAD (Pjerk et al, 2020; Tao et al, 2020; Chen et al, 2024).

Talking therapies

Cognitive behavioural therapy specifically tailored for SAD (CBT-SAD) helps individuals develop coping strategies to manage negative thought patterns and behaviours. Research has demonstrated that CBT-SAD can provide long-lasting benefits, even beyond the seasonal episodes (Meyerhoff et al, 2018; Rohan et al, 2004)

Medication

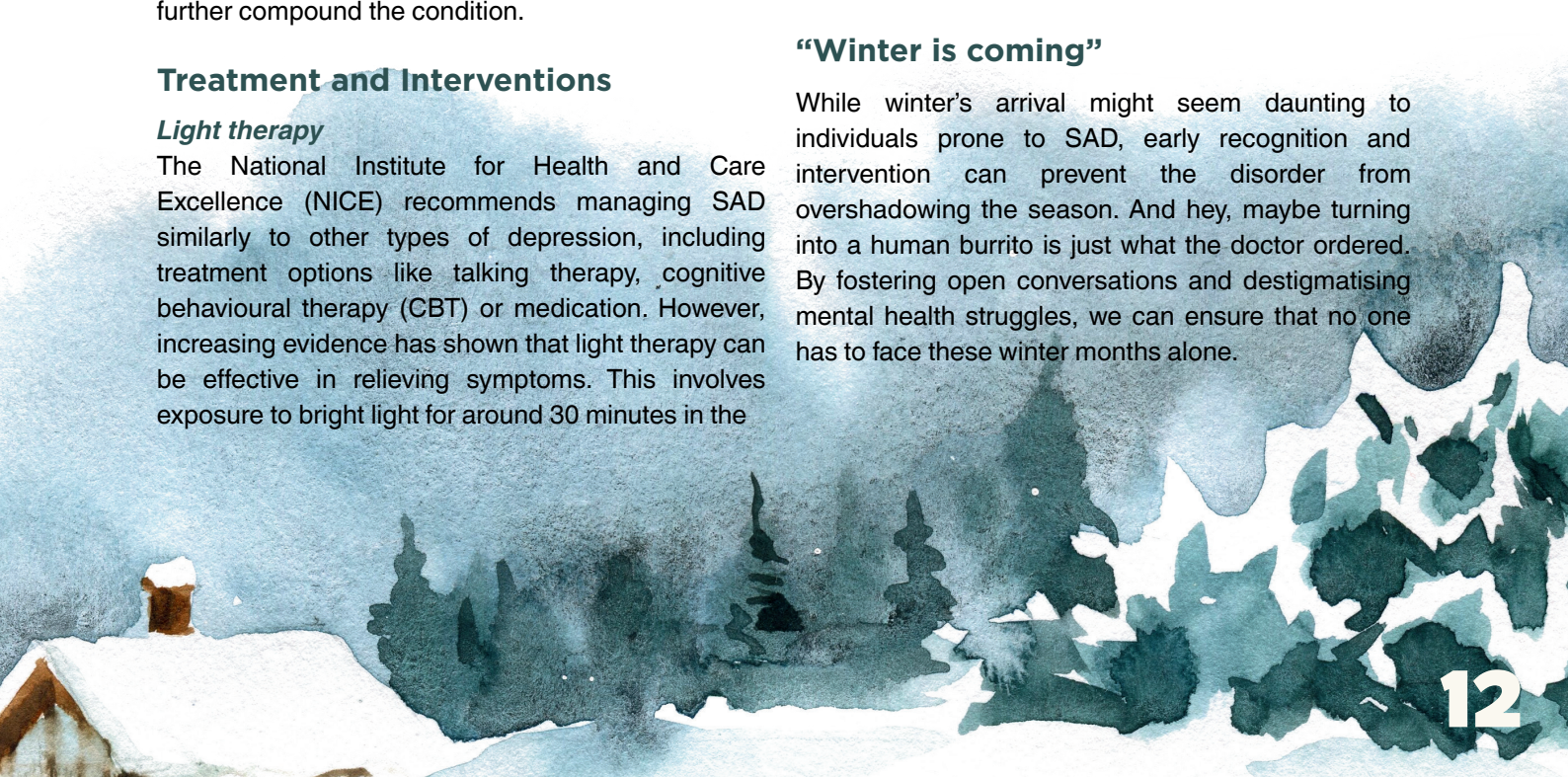
Antidepressants, such as selective serotonin reuptake inhibitors (SSRIs) often used to treat depression, are also sometimes prescribed to treat more severe cases of SAD, addressing the chemical imbalances associated with SAD. Clinical trials have shown that SSRIs can be particularly effective when combined with light therapy (Lam et al, 2016; Rohan et al, 2004)

Lifestyle Changes

Simple adjustments in everyday life can also make a difference. Regular exercise, a balanced diet and maximising exposure to sunlight during the day, such as sitting near windows when indoors, can all contribute to improved mental health during these winter months. (NHS)

“Winter is coming”

While winter's arrival might seem daunting to individuals prone to SAD, early recognition and intervention can prevent the disorder from overshadowing the season. And hey, maybe turning into a human burrito is just what the doctor ordered. By fostering open conversations and destigmatising mental health struggles, we can ensure that no one has to face these winter months alone.



STUDENT SOBRIETY

Navigating Mental Health in a Culture of Drinking

For young people, choosing sobriety is fundamental to mental health recovery.

When I tell people I don't drink alcohol – often when refusing a drink – they tend to be curious. “Like at all?” or “how come?” is how it typically goes. When I explain that drinking aggravates my mental health, people often resonate, even revealing their own struggles when mixing alcohol with depression or anxiety.

Statistics show that an increasing number of young people between 12-19 are reducing their alcohol intake, with the “potential for alcohol-related harm” being the predominant reason. This encompasses chronic harms to both physical and mental health, suggesting that the shift towards sobriety is partly driven by a desire to safeguard mental health.

A Troubling Association

Long-standing clinical evidence supports a link between common mental disorders (CMDs), like anxiety or depression, and alcohol use disorder (AUD), a specific subtype of substance use disorder (SUD) described as an individual's uncontrolled or over-consumption of alcohol. AUD is frequently diagnosed alongside CMD in both adolescents and adults. This association is bi-directional, exposing a dangerous cycle in which poor mental health increases the likelihood of AUD and vice versa. What's more, research tells us that students in higher education are more susceptible to symptoms of common mental disorders (CMDs) such as anxiety or depression, with one study showing a positive association at 18-19 years. With AUD often underdiagnosed, this raises a crucial question: could younger students be particularly at risk of both AUD and CMD?

Understanding the Effects of Alcohol

The approaches students adopt to “let loose” are not always healthy, and alcohol might be one of the more detrimental strategies. Living and studying in England is a privileged position, but for many, heavy drinking is a defining social ritual within England's student community. This can lead to trouble. For me, university socials were often alcohol-fuelled, offering a brief, deceptive calm from academic pressure and mental health challenges – until the next day, when an inevitable crash of emotion would send me into a deeper struggle. This vicious cycle was a reality I was slow to confront.

The effects of alcohol can temporarily relieve CMD symptoms such as low mood or irritability. Because alcohol is rapidly absorbed in the gut, its relief is immediate, and it is often used as a means of “self-medication”. As a neurological agent, alcohol acts as a sedative and anaesthetic to the central nervous system, triggering the release of dopamine and serotonin to induce a sense of disinhibition and euphoria. However, this relaxing effect is

temporary. When the drinking stops and withdrawal begins, the brain scrambles to mitigate the imbalance of excitatory and inhibitory neurotransmitters, leading to symptoms like anxiety, delirium, and depression.

Integrated Recovery

"I've been depressed all weekend because I drank so much," admits a fellow UCL student, describing it as an "extended hangover, but it's depression." Another student confided that they think about cutting down "every day" to prioritise their mental health, acknowledging that the social aspect of drinking, not the alcohol itself, was what improved her mood.

While the comorbidity of CMDs and AUD is extensively documented in scientific literature, this understanding has not translated to the general population as effectively as the links between smoking and lung cancer, or obesity and type 2 diabetes. Another student shared, "It's interesting that you've said about the link [between drinking and mental health], but when I spoke to psychiatrists they didn't understand that".

The path to recovery is fraught with challenges. It not only involves confronting ongoing and episodic symptoms, but also disrupts life trajectories, social relationships, and leads to often stigmatising reactions from others, which can in itself be mentally taxing. To effectively treat these concurrent conditions, it is clear that we cannot address one condition while ignoring the other.

72% of adults starting treatment for alcohol abuse in England report a concurrent need for mental health treatment. By treating substance abuse without tending to the corresponding mental health needs, patients may drop out of treatment or relapse. At UCL, services such as psychological therapy are available from the Changing Unwanted BEhaviour (CUBE) Clinic, which can be found through support services on the first floor of the student centre.

My Experience

My decision to opt for total abstinence was the first step in my mental health recovery and was influenced by the reflections of sober family members and the steadfast support of my friends. In CMD and AUD treatment, narrative experiences of personal recovery are proven to enhance problem recognition and elevate quality of life. Sobriety represents a highly personal and diverse reality for each individual. Therefore, sharing your own experience may offer guidance to others struggling with alcoholism and mental health, while also challenging the stigma that surrounds AUD.

Even though avoiding heavy drinking may sometimes bring feelings of social detachment, the short-term negatives are far outweighed by the long-term positives. This is reflected by the rising number of people staying sober. The process of gaining control over substance use alleviates anxiety stemming from alcohol-induced missteps, and protects you from the depressive state caused by hangovers. Effective recovery from AUD promotes a sense of agency and self-confidence, paving the way for improved cognitive function and goal achievement that nurtures broader mental wellbeing.

Artist: Meera Maniar



Seizures and Sadness: Exploring the Complex Relationship Between Epilepsy and Depression



Epilepsy is one of the oldest recognised medical conditions in the world, with accounts of what we now believe to be epileptic seizures dating back to 2000 BCE. Epilepsy is defined as a brain disorder characterised by recurring, unprovoked seizures. For most of this time, the association between epilepsy and depression has been recognised and commented on, for example by Hippocrates, who stated, "Melancholics ordinarily become epileptics, and epileptics melancholics."

The evidence for this link has also been well documented in more recent times, with research showing that adults with epilepsy are twice as likely to experience feelings of depression compared to adults without epilepsy. The data also shows a correlation between severe epilepsy and severe depression; however, questions regarding the mechanism responsible for this relationship remain unanswered.

It has been hypothesised that the difficulties associated with living with epilepsy lead to depression. It seems logical that the unpredictable nature of seizures and their impact on quality of life and independence would lead to poorer mental health. Other common comorbidities and potential complications, such as sudden unexpected death in epilepsy (SUDEP), can cause excess stress and worry, therefore negatively impacting wellbeing. Epilepsy can also be a barrier to educational opportunities and certain occupations, potentially leading to financial issues, which have been shown to contribute significantly to poor mental health. This is likely particularly significant for those living in low- and middle-income countries, which account for nearly 80% of people living with epilepsy. Perhaps most importantly, discrimination and misunderstanding have surrounded epilepsy for centuries, and so it seems probable that the widespread stigma and fears of disclosure that often come with a diagnosis could contribute to feelings of depression.

It has also been argued that seizure medications may contribute to changes in mood. While some may have positive effects on mood, there is evidence that others could worsen mood, particularly at high doses. Therefore, in 2008, the FDA warned that antiepileptic drugs may increase the risk of suicide or suicidal thoughts through a range of possible mechanisms, such as potentiation of GABA neurotransmission and by causing folate deficiency. However, a 2009 review found that many other factors were not addressed when analysing the association, including the risk of pre-existing depression in people with epilepsy, potentially invalidating the research and suggesting that antiepileptic medications may not be causing depression in epilepsy patients.

In addition, it must be considered that **the relationship between epilepsy and depression appears to be bidirectional**, since people with depression also have a higher risk of developing epilepsy. One potential explanation for this could be the proconvulsant properties of some types of common antidepressants, as these drugs lower the seizure threshold of the brain. However, the two-way interaction has also been demonstrated in those with depression not treated with medication. This points towards the conclusion that there is something about the physiology of the brain that makes a person with epilepsy more likely to experience depression, and vice versa. **It is suggested that some of the areas of the brain responsible for certain types of seizures also affect mood**, and therefore, physiological abnormalities in these areas could lead to both epilepsy and depression. Further evidence for this hypothesis is based on the fact that **people with epilepsy have a higher risk of developing depression and other mood disorders before even experiencing their first seizure**. This would suggest that some of the changes in the brain that make a person susceptible to seizures (such as lower neural plasticity or brain damage due to traumatic brain injury or infection) could also make them more susceptible to depression than the general population.

Nevertheless, most experts in the field would agree that regardless of the nature of the relationship between epilepsy and depression, **care for patients living with these conditions must be better integrated**, given that they often occur together. Progress in this area has the potential to improve many people's lives, given that around 50 million people have epilepsy globally, and a large proportion of these also experience depression. If the two conditions are linked by a common physiological cause, then it is clearly relevant to consider how they could both be treated using a similar method, and how this treatment may differ from practices used to treat just one of the conditions in isolation. **Even if they do not share the same root cause, their complex interplay necessitates an understanding of both conditions**, which is not always the case. This is demonstrated by the fact that most of the information regarding treating depression in patients with epilepsy is anecdotal, rather than being based on randomised controlled trials or any kind of systematic investigation.

It is critical that we take the mental health comorbidities of epilepsy more seriously, as they can affect self-management and prognosis, even when symptoms are mild. Therefore, more holistic treatment could significantly improve patient experiences. These comorbidities are also associated with increased inpatient care and hospitalisations, so improving treatment methods would also be economically beneficial.

Most research suggests that a multidisciplinary team approach is necessary to tackle the difficulties patients face when dealing with the interaction between epilepsy and depression. This should include the integration of mental health professionals into epilepsy care teams, as well as mental health training for neurologists, many of whom have identified this as a key part in improving care. Through a better understanding of the intersection between these two challenging conditions, patients can be better supported in maintaining both their physical and mental health, ultimately minimising or eliminating the negative impact that these conditions might have on their quality of life.

Poppy Pendergast
Artist: Jin Yu

Naomi Chung

NO ART WITHOUT PAIN?

The myth of the 'tormented artist', where does it really come from?

The Romantic composer Franz Liszt said, "Mournful and grand is the destiny of an artist." Van Gogh's 'Self Portrait with a Bandaged Ear' might arguably be the most famous visual manifestation of self-harm due to psychosis. Rachmaninov produced his century-defining 'Piano Concerto No. 2' after attending an intense course of hypnotherapy for his depressive symptoms. Sylvia Plath suffered from manic depression and eventually committed suicide.

There is even a phenomenon named after her, claiming poets are more susceptible to mental illness compared to other writers. The list goes on, providing irrefutable evidence for the relationship between the creative arts and mental illness. Could it be that we have been interpreting this association the wrong way round? Instead of thinking of art as a manifestation of suffering, perhaps we should think of art as the medicine for mental wellbeing.

Suffering is not art

In the article 'Why I hate the myth of the suffering artist', Al Kennedy explained that suffering is not inherently art; if an artist is able to turn their pain into art, it is because they've got an artist's talent. To Kennedy, the concept that suffering brings art is poisonous. By assuming that suffering evokes artistic expression, we perpetuate the idea that wellness equates with "non-art"—ingenuine

works that lack emotional provocation with no creativity. We can't be blamed completely for this bias; after all, the media feeds us content that is hyper-fixated on the demise and torment of artists and musicians. Tormented art sells. Perhaps more concerning is the fetishisation of trauma from the artists themselves, where they focus on their suffering rather than their creative process.

Art as a psychological process

Art is a human phenomenon. Therefore, it is fundamentally a psychological process that involves integrating different parts of the brain. In fine art, one of the most significant components is the visual perception of space, form, and colour — the artwork is perceived by our eyes, then transmitted to and processed in the occipital cortex. In 1954, Rudolf Arnheim wrote 'Art and Visual Perception: A Psychology of the Creative Eye', in which he suggests that stimuli are organised as a whole, as opposed to a collection of separate



elements. It then follows that the creative process is psychologically active and an intellectual experience, with visual perception intrinsically linking to the cognitive process of thinking. Arnheim theorises that the creative process is a problem-solving journey — balancing raw emotions with emotional resonance, imagination, and reality.

This can also be applied to music, literature, and other performative arts, as the creative process requires neurological integration of different cognitive functions: for example the occipital cortex for visual perception, the motor cortex for art-making, and the auditory cortex for listening. Creating art also demands introspection of and response to one's own psyche to effectively express and evoke the desired emotions in the viewer, reader, or audience. This would involve the hippocampus for recalling memories, and the prefrontal cortex for emotional processing and resonance. This process, similar to aesthetic appreciation, can be comforting and cathartic.

The healing power of creativity

Art can transform lives by communicating and externalising pain and emotion. A qualitative research study by Susan Spaniol establishes the link between art and mental illness. Spaniol interviewed artists, with many recalling pleasure and solace in artistic production despite their struggles with

loneliness. She proposes the possibility that art could be more closely related to psychological wellness than illness, believing that by incorporating art in clinical therapy centres, creativity can be used to heal.

There is a therapeutic effect to expressing identity and feelings through creativity and visual metaphors. In this way, the creative process provides an opportunity to self-connect, and patients might find it easier to show rather than tell. It then tracks that these expressions can be used as data points for mental illness recovery. The promotion of art-based research has shown promise in improving and recovering from mental illness. Encouraging creativity is for everyone, and it works for everyone.

The therapeutic value of art is everywhere if you want to experience it. Ultimately, art revolves around your personal expression, allowing you to heal according to your own terms.





JUST PAINT THE TOWN GREEN

*Looking beyond “green spaces”
when it comes to urban
environments and mental
health*

Cities, mental health and nature’s role

Over four billion people – more than 50% of the global population – live in urban environments. This population, which only continues to grow, faces a multitude of crises, from climate change and pollution to wealth inequality and environmental loss. Each is another burden on mental health, another weight that disproportionately affects the most marginalised.

Green spaces are often described in policy and media as a catch-all cure for adapting our cities to climate change, protecting environmental integrity, and improving mental health. They are at the forefront of nature-based solutions (NBS), which “leverage nature and the power of healthy ecosystems” to address this litany of issues. In terms of mental health, **there are decades of research supporting a positive relationship between green spaces and mental wellbeing.**

Yet despite increasing investment and research, between 1990 and 2020 the amount of green spaces in urban areas declined globally by 5.6%. Combined with the potential of greening projects to drive gentrification, and the fact that green spaces can often overlook vital components of stable ecosystems, maybe it’s time we rethink how nature and mental health might interact in cities.

Maxime Chautemps
Artist: Annie Hollis-Barter

Biodiversity and Mental Health

Biodiversity is one aspect of stable ecosystems that is often neglected in green spaces. The same goes for its effects on mental health, with research into such relationships being disappointingly sparse. The studies that have been carried out show a mix of interactions – mostly insignificant, some positive, and several negative.

Despite a lack of studies, numerous theories have been proposed to try and frame how biodiversity could affect our mental health.

In their book ‘The experience of nature: a psychological perspective’, Rachel and Stephen Kaplan observe that we tend to prefer certain environments depending on what information we can obtain from it. Biodiversity is one such source of information and adds complexity to environments, with evidence suggesting we perceive increased complexity as being more restorative to mental health.

However, the authors caution that this relationship exists on a pendulum. If an environment is too complex, information can become incoherent or overwhelming to the viewer, and any restorative potential may be lost in all the noise.

Biodiversity may also be important to managing stress, as complexity is also a



component of the Stress Reduction Theory (SRT) that argues natural environments reduce the effects of stress through several visual aspects. Then, there is the Attention Restoration Theory (ART), which presents a model for how concentration and focus can be restored through the intrigue and novelty of more biodiverse environments. But, once again, too much biodiversity might end up being a bad thing, hindering the observer's ability to concentrate.

Finally, it's important to note that biodiversity indirectly affects us through its role in maintaining the ecosystem services that we benefit from. These services range from temperature regulation, removing pollution, supplying water, and more. It's easy to imagine how mental health would be negatively affected due to the cascading effects of biodiversity loss.

Future of our cities

In the UK, the new Planning and Infrastructure Bill is set to seriously undermine protections for biodiversity and ecosystem integrity in urban environments. It has been heavily criticised by many, including by The Wildlife Trust and the RSPB. Both highlight that not only will nature "lose out" due to removal of development safeguards, but so will the residents of the future urban spaces built under this bill.

Great urban spaces should not come at the expense of nature. When it does, it's the mental health of all residents that suffers too. Simultaneously, however, we need to readdress how we think of nature in towns and cities. We need to think of natural spaces as more than just green and look to other aspects, such as biodiversity.

a runner's addiction: 'runner's high'

What it is and its benefits on mental health

PATRICK TOH

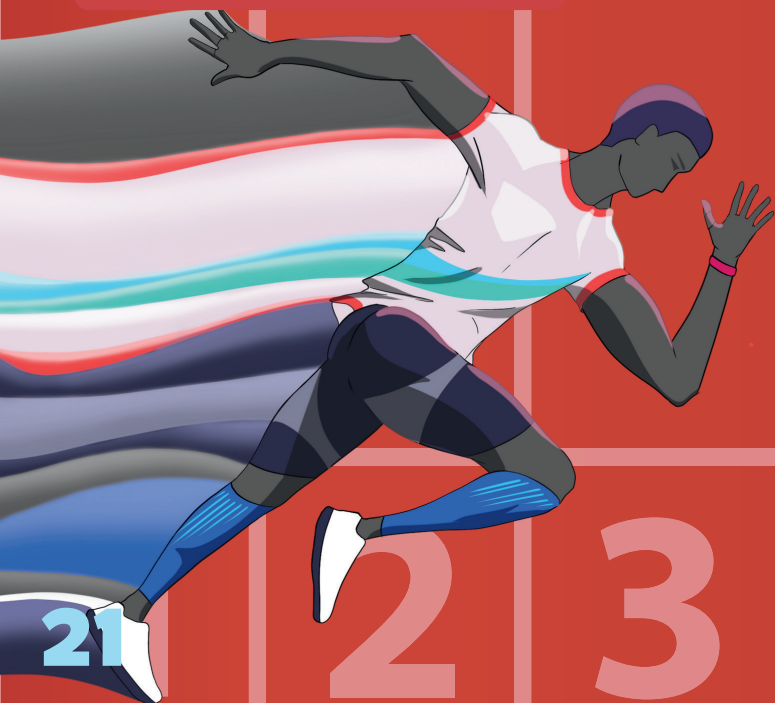
ARTIST: MEERA MANIAR

My younger self would be in disbelief if I told him I'd be running four times a week and more than five kilometres per week. Running has been a consistent hobby of mine for four years now, and I don't plan on quitting! I was keen to learn more about what fuelled this addiction I developed. An addiction runner's term 'runner's high'; as Merriam-Webster defines it as, 'a transient state of euphoria coupled with lessened feelings of anxiety and a higher pain threshold'. It is well known that any form of exercise can provide emotional and physical benefits for most people due to the activation of reward mechanisms as we exercise. So, I wanted to explore the mechanism underpinning 'runner's high' and how it benefits our mental health.

What is the Runner's High?

As explained above, a 'runner's high' is a state of euphoria that individuals experience while running or after running. There's no official definition of 'runner's high' because this phenomenon can vary between individuals; common descriptions include feelings of "pleasantness", "inner harmony", and my favourite description, "I just feel like I am going like a son-of-a-b*tch". I always feel a boost of energy and a sense of accomplishment, and I feel more productive and focused throughout the day compared to days when I don't run. The mechanism by which it arises is highly controversial, but it is theorised that the endocannabinoid system, the same pathway linked to cannabis induced euphoria, is the main pathway involved in causing runner's high.

Dubreucq and colleagues ([2010](#)) investigated how the endocannabinoid system affects voluntary running using mice which had their cannabinoid receptor



CB1 deleted. They found that CB1 receptor knockout animals had 30–40% less running activity than controls, and the deletion prevented the reward-driven behaviour that makes exercising addictive. Further animal studies like Raichlen et al. (2012) confirmed that endocannabinoids contribute to engagement in high-intensity exercises by extracting blood samples from subjects and measuring their AEA and 2-AG levels, markers prevalent in the endocannabinoid system. Furthermore, Boecker et al. (2008) and Van Praag et al (1999) have found that exercise induces some form of hippocampal neurogenesis, but this is hotly debated.

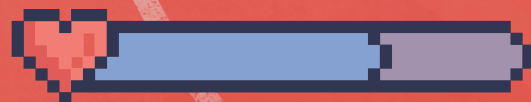
Another likely mechanism would be the production of endorphins, which have been shown to increase after prolonged exercise. This is likely in order to reduce the stress and pain that come with intense exercise. Doyernart et al. (2020) confirmed that many experience increased well-being and happiness by examining the psychophysiological changes in amateur runners after finishing a half-marathon. It is also hypothesised that the running mechanism itself can be beneficial; the rhythm and repetition of running can create a state of flow, reducing anxiety and improving mood. Moreover, Sato et al. (2018) found that engaging in physical activities like running can be associated with greater life satisfaction, offering new runners a distraction from their daily life.

Other neurotransmitters also play a role in the euphoric and stress-relieving feeling you get from running. These include serotonin and dopamine. Dopamine helps reinforce the rewarding feeling you get from running, and serotonin is most likely to be involved in the general sense of well-being and relaxation.

Significance of Runner's High

Regular exercise, like running, can improve one's physical and mental well-being. Runner's high can be utilised by coaches and trainers to plan workouts around promoting the release of endorphins and endocannabinoids in order to decrease pain perception and ultimately increase the endurance performance of their athletes. Additionally, jogging can enhance mental well-being, reduce stress, and act as an effective therapy against anxiety and depression.

Personally, running has greatly improved my mental and physical health by providing me with a challenge that motivates me to continue to improve. In contrast, without running, I feel sluggish and become easily distracted. Overall, I recommend that every individual should lace up a pair of trainers and go for a run.



CONTINUE

NEXT

One can be the **Magic Number**


Altay Shaw

As it currently stands, the referral time to seek psychiatric services in the United Kingdom is around 18 weeks, with about 75% of patients being seen in that time. Whilst on the surface that may not seem all that bad, it is important to note that the figure only refers to those who seek help from their doctor, meaning the true number of those who actually access services might be closer to 30%.

The more worrying aspect of these referrals, is that the majority of contact made by patients amounts to a single individual session with no set target for further intervention. This may only be a single call to a crisis line or a single discussion with a doctor or counsellor, with little to no plans put in place to ensure there is a safety net for patients in the future. As such, there is a critical need to have a structured approach to initial referrals and continued care for patients with acute mental health needs.

Thus, health services around the world need to focus on the initial outreach and outcome for patients within that first session. Though the standard course of intervention for mental health conditions last a few weeks, retention of patients remains an issue. In 2024, Nuffield Trust reported that as few as 37% of individuals who were referred actually completed their treatment. Yet at the same time, the yearly referrals to services are increasing at around 4%, meaning more appointments but less adherence and engagement with services to see a meaningful improvement.

This typically moves the focus towards seeking pharmacological interventions. In the cases of anxiety and depression, this means antidepressants. The NHS Business Services Authority (NHSBA) report for 2023/24 showed that about 8.9 million individuals are currently on antidepressants. Whilst effective, these patients can be left on them for years, potentially leading to horrible withdrawal effects.



To help ensure patients are fully educated and know the options available to them, an anchoring system needs to be introduced for patients. Single session interventions (SSIs) are defined as “structured programs that intentionally involve only one visit or encounter with a clinic, provider, or program”. Whilst it usually refers to phobias or education, it can also be thought of as an umbrella term, focused on delivering concise and clear information/treatment dependent on the patients’ needs.

As the SSIs are more flexible and can be tailored specifically to the condition, they can also be delivered in a variety of different settings and by a number of different professionals. These sessions can also be used to increase engagement with services, especially crisis services for patients who are experiencing acute episodes. However, limited data exists to show whether it is solely the SSIs that produce this effect or, if it is a combination of the care providers and the patients who were referred onto these specific pathways.

A meta-analysis of the data, suggested that SSIs show notable improvements for patients with depression, especially for young adults and children. Though the improvements were clinically significant, the review stated that it was hard to draw accurate conclusions as the providers and socioeconomic factors had not been consistently controlled. Although the latter seemed to show a lack of variance in outcomes, it still remains critical for future providers of SSIs to consider before providing them.

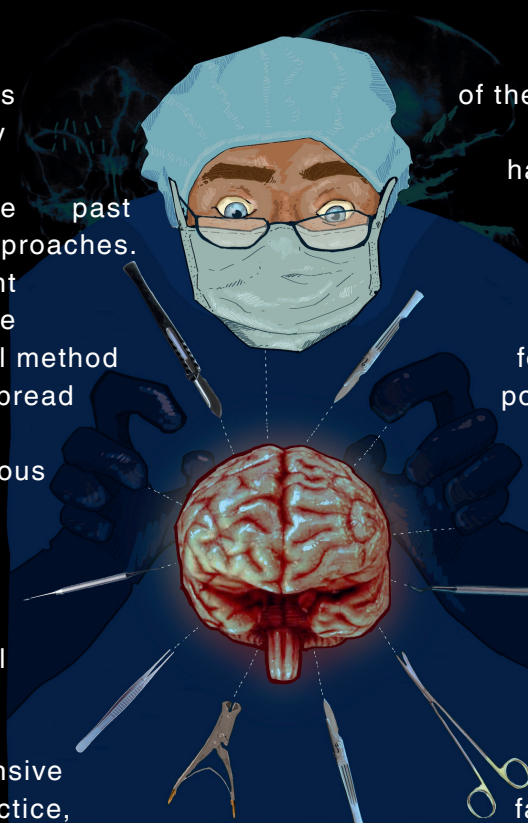
As such, SSIs roles appear to serve a smaller focused target. Predominantly as an anchor point for interventions to be implemented upon and not as a substitute for longer interventions such as guided self-help and talking therapies. There also needs to be a greater importance placed on providing access to services rather than simple discussion of them.

Artist: Ahmad Bilal

THE RISE AND FALL OF PSYCHOSURGERY

A Medical Controversy

With a growing awareness of mental health and quality of life, mental health issues have undergone significant revolutions over the past decades, driven by innovations in holistic approaches. However, the long history of mental disorder treatment did not come without controversy. One of the most striking examples is for mental disorder treatment that briefly gained widespread popularity during the mid-20th century, mainly in the US. The lobotomy, perhaps the most infamous form of psychosurgery, heard of. Despite a viable and declined due to ethical issues and unanticipated detrimental consequences for patients. Until today, psychosurgery serves as an interesting case study to reflect on the importance of comprehensive research and ethical standards in medical practice, far beyond focusing solely on short-term results.



of the strong connection between of life, the management of has undergone significant decades, driven by. However, the long history of did not come without most striking examples is for mental disorder treatment popularity during the mid-20th US. The lobotomy, form of psychosurgery, heard of. Despite a viable and psychosurgery rapidly ethical issues and consequences for psychosurgery serves study to reflect on the research and ethical far beyond focusing solely on

Celine Tedja
Artist: Ayesha Hyder-Burney

Psychosurgery is the surgical destruction of specific nerve pathways in the brain in an attempt to influence behaviour and alleviate psychiatric symptoms. The general idea behind this procedure is that certain parts of the brain are responsible for certain symptoms, and therefore, disrupting the nerve connections in these parts is believed to help alleviate the associated symptoms.

Interestingly, the history of surgical interventions to treat mental health issues may date back as early as 6000 B.C. A practice known as “trepanation” or “trephination” performed during this period involved drilling a permanent hole in the patient’s skull. According to discovered evidence, there might be several motives behind this. The procedure was primarily

performed for medical reasons, such as to treat headaches, epilepsy, and mental illnesses, as well as for spiritual purposes. However, more investigations are needed to better understand how this practice emerged and spread across regions.

It was not until the 1930s that the term “psychosurgery” was coined by the Portuguese neurologist António Egas Moniz. During this period, he introduced the prefrontal lobotomy (or leucotomy) to treat mental conditions such as depression and schizophrenia. The procedure involved drilling two small holes in the skull and severing the white matter fibres in the frontal lobe, a part of the brain responsible for personality, reasoning, and decision-making.

He suggested that disrupting these fibres would help cure patients' mental illnesses. In the first few procedures performed, Moniz claimed multiple successful cases, which quickly caught international attention. His technique was later adapted and advocated by the US neurologist Walter Freeman and neurosurgeon James Watts. Their findings in 1942 stated that out of 200 performed lobotomy procedures, 63% of patients improved post-lobotomy, 23% observed no change, and the rest (14%) worsened or died due to complications – statistics that, in hindsight, were misleadingly optimistic.

Freeman introduced the transorbital lobotomy in 1946, also known as the "ice-pick" lobotomy, which he claimed to be more time-saving. This involved hammering a sharp ice pick through the eye socket into the brain's frontal lobe to sever nerve connections. In 1949 alone, over 5,000 procedures were performed in the US, making this the peak era for psychosurgery. In the same year, Moniz, who first introduced psychosurgery, received a Nobel Prize in Physiology or Medicine for his pioneering work. Initially reserved for severe psychiatric cases, psychosurgery practice soon expanded to treat a wider range of conditions. Despite some reported irreversible and devastating consequences, such as cognitive and speech impairment, incontinence, seizures, and even death, psychosurgery continued to gain traction, as no other treatments for mental disorders were widely available at that time.

To no surprise, the spotlight on this invasive practice did not last very long. In the 1950s, the increasing awareness of psychosurgery's dangers sparked a public backlash. Many procedures were even performed without patients' informed consent. Moreover, the introduction of antipsychotic agents such as chlorpromazine to treat mental disorders further escalated the decline of psychosurgery, as they were evidently more effective and safer for patients. Later on, the development of a greater variety of psychotropic medications, together with the escalating concern and negative perception towards psychosurgery, shifted people's interest towards medication and away from psychosurgery, marking a new disruptive era in mental health management.

So, is psychosurgery completely neglected now? The answer is no; however, they are only used in extreme cases and hence are very rarely performed. The techniques used also differ from the past controversial psychosurgery. The modern-day surgical intervention is termed "neurosurgery for mental disorder" (NMD), in which surgeons create lesions in targeted parts of the brain using heated probe tips, utilising MRI scans as a guide. In the UK, the main types of NMD include anterior cingulotomy and anterior capsulotomy. These procedures cannot be performed without the patients' consent, in accordance with Section 57 of the Mental Health Act 1983. Moreover, they are only used as a last resort, after other treatments, such as psychotherapy, medications, and neuromodulation, have failed.

Perhaps one of the most important takeaways from the history of psychosurgery is the significance of ethics and integrity in medical practice. Patients' safety and welfare should always be prioritised by ensuring informed consent and properly communicating potential risks. This case also highlights the importance of extensive research before implementing a procedure on a large scale, as well as having objective criteria to assess the efficacy of a treatment. During the rise of psychosurgery, assessments of its effectiveness and safety were highly biased, with adverse effects often downplayed or ignored to promote it as a novel treatment for psychiatric disorders. Nowadays, various guidelines on efficacy measurements have been established to ensure the validity and reliability of trial data. Moreover, patients' rights are now thoroughly protected by laws in medical ethics, with one example being the UK's Mental Health Act, which describes the rights of people with mental disorders regarding assessment and treatment. After all, the ultimate goal of healthcare is to ensure positive patient outcomes across different dimensions of their lives, and this greatly relies on professionalism, compassion, and strong ethical principles.



Written by Elizabeth Jovana Sulistyo

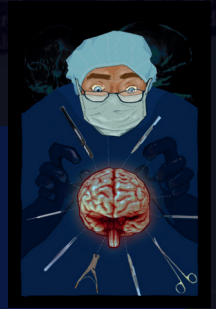
Art by Patrick Maranda

On 10th October 2020, a paper made headlines with the revelation that a species of the tardigrade genus *Paramacrobiotus* can survive harmful radiation by cloning blue. This discovery

Despite pervading the animal kingdom – scorpions, parrots, chameleons and frogs can auto-fluoresce – its functional significance is unknown. Photomicrographs

omobionts (excessive salinity). Remarkably, they are the first animals found to be able to survive exposure to the vacuum and radiation of outer space. The tardigrade curls up, reducing its surface area for evaporation, with lost water replaced by bioprotectants such as trehalose that protect cellular macromolecular and internal organs.

radiation tolerance open for human survival, especially programmes, such as the Life Project, have already made how they react in space. The study



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We welcome everyone to join us in exploring fascinating topics in science and how they intersect with each other and society!



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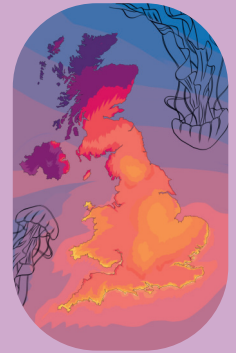
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