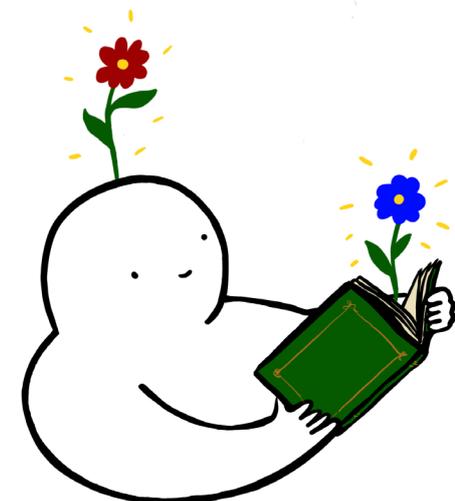
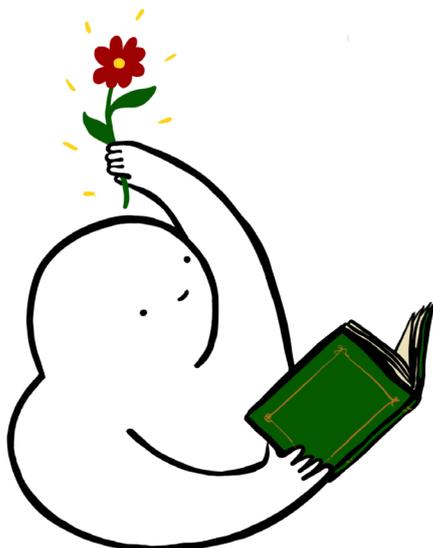
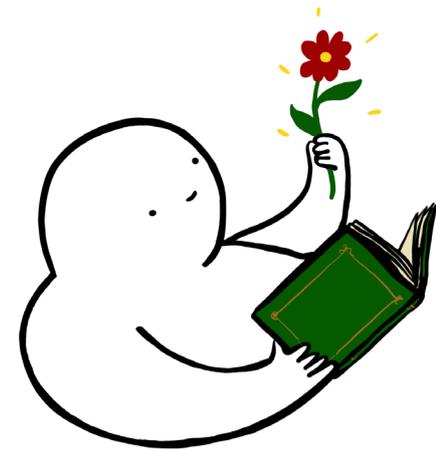
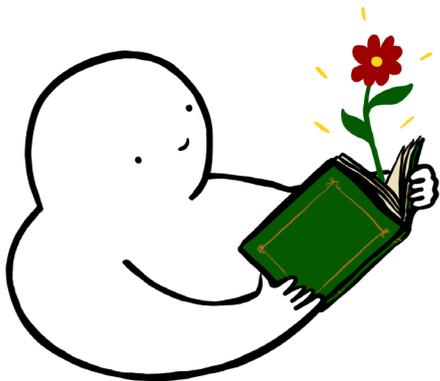
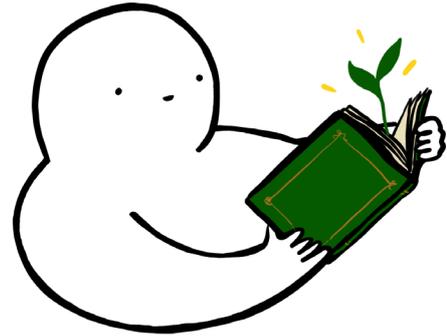
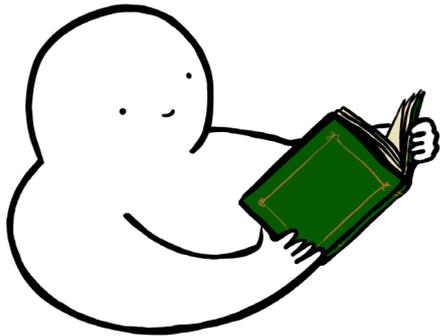


-MAZE-

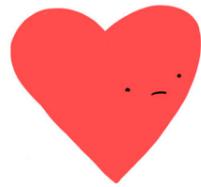
University of St Andrews Psychology and Neuroscience Magazine



Featuring illustrations from @worrylines

REVIVAL ISSUE 4 | WINTER EDITION

TABLE OF CONTENT



MEET THE TEAM

04

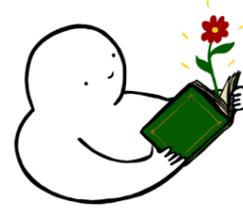
Meet the people who worked to make this magazine happen!



IN THE REAL WORLD

05

Noticing parallels. Explore this section for a chance to learn more about how the theories you learn about in class manifest themselves in our day to day lives!



DESTIGMATIZING

11

Mental illnesses have long been dismissed by society; however, times are changing. Read on to see authors shed light on mental illnesses and disorders and educate yourself on the experiences of others!



EVER THOUGHT ABOUT

16

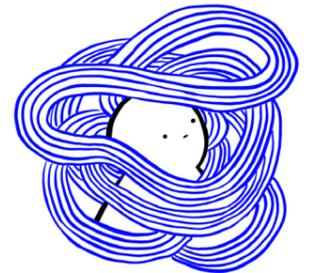
Cultivating interest. This section aims to make readers curious about the scientific foundation behind every day phenomena. New to psychology? This is your chance to learn more!



CONVERGENCE

21

Interconnectedness in all. Explore the ways in which psychology interacts with other subjects and the impact such connections have on both fields. Get ready to open your mind!



CONTROVERSIAL

28

Every field has a controversy; a topic not talked about at the dinner table; a piece of research the findings of which came out of highly questionable scientific practices. Psychology is no exception; find out more in this returning section!

TABLE OF CONTENT



TINI GABASHVILI
EDITOR IN CHIEF

This magazine has had a special place in my heart ever since my first year at St Andrews - it has come such a long way since then. After my two-year journey as the editor of 'Controversial', I feel extremely honoured to present our newest issue as the Editor in Chief!

MAZE is a space to talk about the things we are passionate about. It is where the diversity and applicability of our fields are showcased. Most importantly, it is a space for ideas – the old and the new. It is a space where ideas are born, debated, and reframed. In these pages, you will discover what different people love most about Psychology and Neuroscience. I hope that these articles inspire you, and that they plant some ideas too!

I would like to thank every person on our incredible committee - our editors, content creators & heads of design and social media. This issue is the product of their hard work, creativity, and dedication. I would also like to thank my predecessors (they set the bar incredibly high), Shiwen Li and Tahira Kaur Chopra, for their vision and continued support, and for everything they have done for MAZE since its 'resurrection'.

And thank YOU, friends of MAZE, for being a part of this incredible community. I hope you enjoy the journey ahead!

WEBSITE // www.maze.wp.st-andrews.ac.uk **EMAIL** // mazemag@st-andrews.ac.uk

INSTA // [maze_standrews](https://www.instagram.com/maze_standrews) **FACEBOOK** // [MAZEstandrews](https://www.facebook.com/MAZEstandrews) **TWITTER** // [MAZEstandrews](https://twitter.com/MAZEstandrews) **LINKEDIN** // [MAZE Magazine](https://www.linkedin.com/company/MAZE-Magazine)



LINA CHI
HEAD OF MARKETING



VARYA SYCHEVA
HEAD OF DESIGN



TZVETELINA IGNATOVA
CONTENT CREATOR



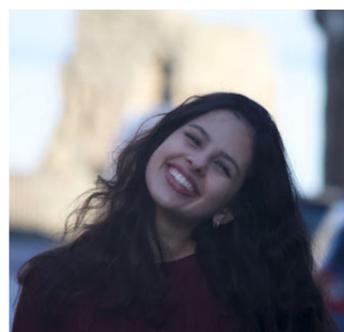
CHLOE HUNT
CONTENT CREATOR



RHEA NAZIR
DESTIGMATIZING



ANNIKA CHERIAN
EVER THOUGHT ABOUT



ANA JULIA FERRERA
CONTROVERSIAL



SIDNEY MORE
CONVERGENCE



RISHIKA KANNAN
IN THE REAL WORLD

IN THE REAL WORLD

My section looks at how psychology concepts or theories manifest in our everyday lives. As a student of psychology, sometimes I find that the content we learn can be very abstract and theoretical; hence, it would be interesting to understand whether people have experienced learnt theories manifest in their real lives. Or, if they feel there are gaps in the field of psychology. The first article is written by me where I outline the importance of love in our lives and how this is not directly addressed in the teachings of psychology. The second piece is an interview with Worry lines - a popular instagram account that promotes mental health - conducted by Tini. This interview displays how art can help in the therapy process by expressing one's complex emotions. Enjoy!

RISHIKA KANNAN

LOVE LOVE LOVE LOVE LOVE LOVE

LOVE

Love is a concept that is rarely addressed in the world of psychology. Yet, it is a big part of our lives- finding a career you love, or that one special person, cooking and eating food that you love. The emotion, love, is a complicated one but it is something that dominates our everyday pursuits. As I research this topic I find some articles claiming love is not an emotion (Burunat, 2016), while others claim that it is a basic human emotion and is recognised worldwide (Karandashev, 2015). However, one thing is for sure: love and happiness come hand in hand (Love and Happiness, 2012). Movies and media sometimes make love or romantic love seem unreachable, only reserved for those lucky ones. In reality, the feeling of love can be built in many different ways and is actually important for our development. This article will look at the various definitions and manifestations of love and its significance in our lives.

Sternberg (1986), came up with the triangular theory of love where he defined seven different types of love containing either passion, commitment, or intimacy (refer to figure 1; pg. 35). Intimacy is outlined as the closeness, connectedness, and bonding we feel, while passion is more of the sexual attraction and drive we have. Sternberg's research was important in highlighting that sex is not the only player in love which was often thought previously (Burunat, 2016). It has been found that when one is in love their brain has a completely different activation pattern involving the anterior insula, ventral striatum, and supplementary motor area (Tobore, 2020). Furthermore, hormones such as, Oxytocin, vasopressin, dopamine and serotonin are all produced when experiencing the emotion 'love' (Tobore, 2020). These hormones and brain circuits are described as reward systems and play an important role in motivating us and giving one a purpose (Tobore, 2020).

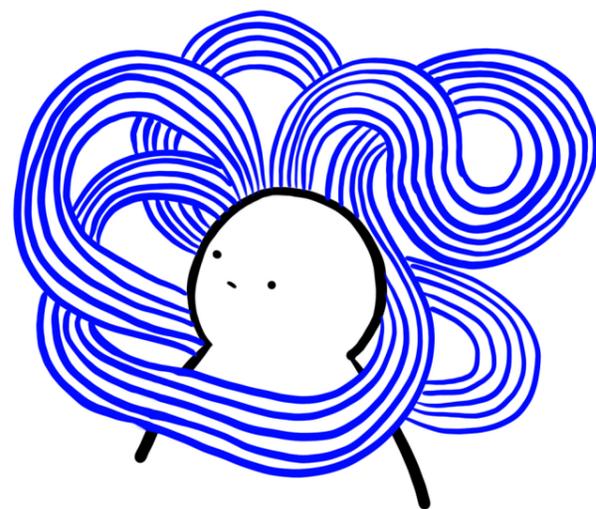
Love may be important not only for motivation but also for our growth and development (Bailey, 2019). Adults who were often neglected or isolated as children tend to have stunted social development and understanding, as the first time one learns about love is supposed to be from their parents or guardians (Bailey, 2019). This teaching is imperative for building the child's confidence, and understanding of how to be a social being who can practice empathy and kindness. It has been found that pet owners tend to have lower stress levels and children who have a boosted social and emotional development (Bailey, 2019). This indicates that just the love for a pet can help one grow.

Love is not always considered an emotion because it does not fluctuate like other emotions. For instance, you can be angry at someone you love, but you cannot be angry and happy at the same time. Therefore, love is sort of a stable state of mind. However, this may also cause one to become connected with someone who may not treat them correctly as you could also be in pain with the person you love. This is important for both therapists and clients to understand as this is where it becomes difficult to get over a romantic relationship or move away from an unstable parent. This may be why love is often feared or avoided in some cultures to protect oneself against its misfortunes.

Overall, I think feeling love is very important for one's health and should be addressed and encouraged more openly in the clinical and societal settings. Doing something you love, falling in love, taking care of someone you love are all ways in which you can express this feeling. Sometimes, finding love and sparking passion within you is all you need to find light on a cloudy day.



WORRY LINES



Feelings and thoughts are complicated. Identifying and expressing them can be even harder. Has anyone ever had these thoughts? Am I alone in feeling this way? One of the most beautiful things about art is its ability to capture exactly how one feels, and to reassure us that someone, somewhere, shares our experiences. Worry Lines (@worry_lines), an instagram account I discovered a few years ago, has a unique way of doing all of this. The anonymous artist behind the account has been posting a drawing every day for over a 1000 days. The drawings focus on the most complicated things in life (thoughts and feelings) and communicate them in a “deceptively simple”, and insanely relatable way. Worry Lines has been with me, and over 756 thousand other people, through love and heartbreak, through everyday struggles, overwhelming thoughts, and confusing feelings. When I heard my favourite account was coming out with a book, I knew I had to jump on the opportunity and somehow make it a part of MAZE. I was lucky enough to speak to the artist behind Worry Lines and get to know more about them and their work. Without further ado, below is the unedited interview with Worry Lines. As they would say, “I hope you find it mildly uplifting”.

Tell us your story! How did Worry Lines start?

Worry Lines started as a kind of daily drawing self-help challenge / joke. Over time it morphed into an important daily practice for me that I still find gives my emotions and ideas a structure and an outlet. I've now drawn and posted a drawing every day for over 1000 days in a row, which is obviously a bit extreme, but daily drawing is a big

“I LOVE IT WHEN THINGS ARE FUNNY AND SURPRISING - AND I LIKE IT BEST OF ALL WHEN THINGS ARE FUNNY AND SURPRISING AT THE SAME TIME AND ALSO NOT ON PURPOSE.”

part of the fabric of my life now, and I'm super grateful for it and for the online community that has formed around the drawings.

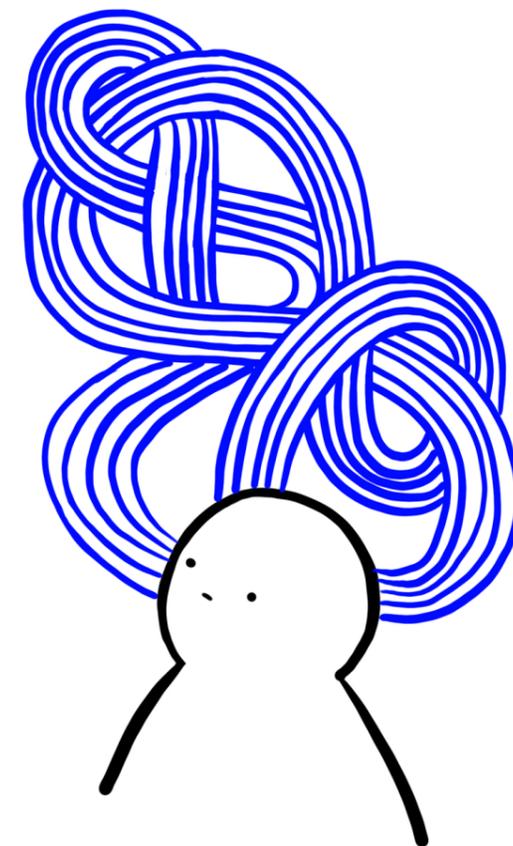
What inspires you?

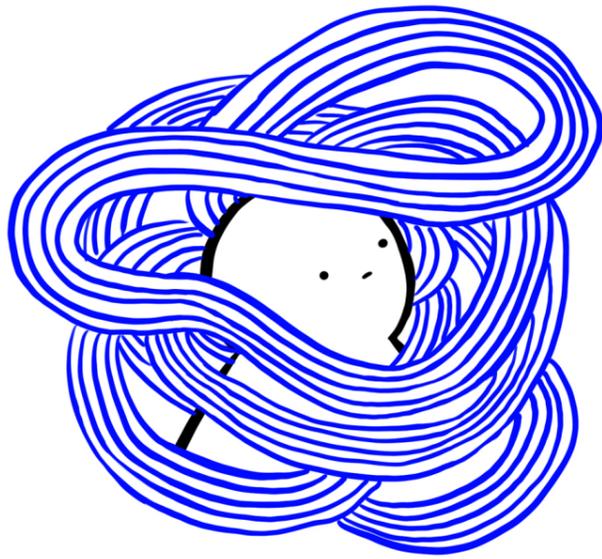
I'm hyped by the idea of communicating complicated things simply, so I'm really delighted by data visualisation - particularly when it involves colour. I'm a big fan of folk and outsider art and am also always super drawn to art by kids and other self-taught artists. I'm deeply inspired by the School Strike for Climate movement. I'm very motivated by food. I love it when things are funny and surprising - and I like it best of all when things are funny AND surprising AT THE SAME TIME and also NOT ON PURPOSE. I'm often inspired by things that don't inspire me - what's that called? Counter-inspirational? I love plants. I'm passionate about potatoes. Imagine how I feel about potato plants! I once saw a grandma blow a kiss at the sun and that might have been the most inspiring thing I've ever seen.

What does your work process look like?

The first thing I think when I wake up in the morning is 'what am I doing with my life?' and the second thing I think is 'what am I going to draw about today?' which is a less existentially debilitating question. I get up and start

drawing straight away. Quite often I start with a completely blank brain and a completely blank page. Sometimes I have an inkling of a topic I want to try to draw about, a phrase that has been stuck in my head or a feeling I'd like to visualise, but quite often I let myself start drawing and see what comes out. It's a funny relationship between the brain and the pen. Sometimes I spend hours refining a haiku-length text, or painstakingly trying to finesse the wording of a joke, or watching videos of people explaining how to draw a cat so it doesn't look weird from that angle. Other days my hand will draw something and my brain will go 'oh yeah! It IS like that!'. But usually there's quite a bit of back and forth between the pen and the brain - they're like a weird double act. Sometimes I get distracted half way through one drawing and end up following a pun down a rabbit hole to a completely different drawing - it's fun ricocheting around my own brain like that. Sometimes an idea for a drawing just pops into my head fully formed, but that is extremely rare. So yeah, most of the 'process' is actually in the business of trying to have an idea, refining the idea, clarifying the idea and polishing the idea. It's mostly me trying to diplomatically facilitate the relationship between my head and my hand.





“I ONCE SAW A PAINTING SO BAD, THAT IT BUMMED ME OUT FOR WEEKS!”

“I ONCE SAW A PAINTING SO BAD, THAT IT BUMMED ME OUT FOR WEEKS!”

What is the most exciting thing this project has brought into your life?

The opportunity to be a professional drawer is an insane privilege. I honestly can't believe my luck. But the best thing Worry Lines has brought me is the knowledge that I'm not alone in feeling the way I feel, and that there are thousands of people around the world that are just as passionate about mental health and potatoes as I am.

People all around the world fell in love with your art. What do you think makes it so universally relatable?

I have a sense that people respond to the drawings because they're simple, honest, and occasionally funny. On top of that, they are not prescriptive or outwardly-focused most of the time. There's a tendency to splash advice around on the internet, and I really try to lean away from that, or sometimes to push against it. I think the drawings are most successful when they visualise something hard to articulate. We all respond positively to seeing our own personal (sometimes secret) experiences reflected - it's comforting to know that you're not the only one who has to have a little lie down on the kitchen floor sometimes. And it's a symbiotic relationship that I have developed with my audience, because I also find comfort in the fact that the internal experiences I draw about are, most of the time, relatable to other people too.

What does it feel like having such a big community connecting over the art you create?

It feels like hanging out with a wonderful group of very funny, very lovely, very worried introverts in the corner of the internet that's closest to the snacks table.

A lot of your work revolves around mental health. Why is this topic important to you?

Haha there are days I wish it wasn't so important to me. I think a lot about my feelings and feel a lot about my thoughts - that's just my jam. And I'm kind of an expert on mental health issues - in the sense that I have lots of them, not in the sense that I'm a mental health professional. I'm just an amateur thinking and feeling enthusiast. There's still a lot of stigma around mental health stuff, which is such a con, because everyone has moments of mental health and moments of mental unhealthiness. Of course those moments often occur simultaneously in a marble cake of a brain - but marble cake brain is nothing to be ashamed of. And I think that the more we talk about how we feel and how we think - the more we can coax those interior experiences out into the light - the easier it is for us to properly examine them, collectively, and to see them more clearly. Once they're out in the world for everyone to see, we can look at each others' thoughts and feelings and go 'oh! You have one of those too?' I thought I was the only one with that particular cross-breed of blind optimism and crippling anxiety.'

Do you think art can have an impact on mental health?

Of course! I once saw a painting so bad that it bummed me out for weeks.

Is worrying necessarily a bad thing? If not, what could be good about it?

Worry is an interesting one, because as an anxious person, I find myself simultaneously very sympathetic towards and very annoyed by Worry. I'm pretty sure that Worry, at least for me, is a very well-intentioned but nonetheless extremely frustrating sidekick who is wildly pessimistic, but only because they don't want me to get hurt. That's at least how I portray them in my book, where I anthropomorphize both Worry and Hope, and explore the relationship I have with those two forces in my life.

What have you been worrying about lately?

Listen, in all honesty, it's probably easier to ask what I haven't been worrying about recently. What I haven't been worrying about recently is the possibility that I could be swooped by a bat and that its talons could get caught in my hair. But now, of course, I am also very worried about that.

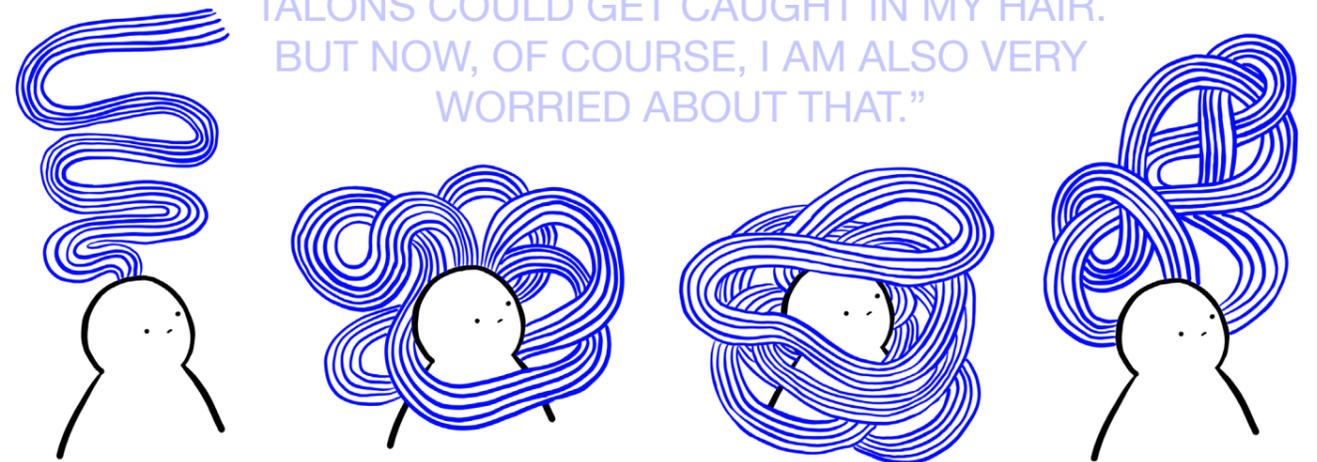
Tell us a little about your new book! What should we expect from it? What was it like turning worry lines into a book?

The book is called This Book Is For You (I hope you find it mildly uplifting.) It's a collection of my favourite drawings organised by theme and tied together by a long-form comic about the writing of the book itself. As mentioned, it features me alongside the characters of Worry and Hope,

who help and hinder me as I write and draw. It was a very tricky thing, to weave this pile of stand-alone drawings together into a cohesive, coherent book. I did so many drafts and had so many ideas about how I wanted it to all fit together. I spent about 90% of my time being totally overwhelmed, and 10% of my time writing (which I've learned since is a pretty common ratio for people in the book-making business.) I think the overwhelm came from the fact that I wanted the book to do so many things at once. I wanted it to combine the tapas-y, browsable feel of the internet or a coffee table book with the satisfying, more substantial feeling of a longer form narrative. I wanted it to be both clever and simple. I wanted it to be both funny and meaningful, honest and hopeful, relatable and specific, vulnerable and brave. I wanted it to be sweet but not saccharine, sardonic but not cynical, uplifting but not vapid. The process felt a bit like baking cookies: I'd add a pinch of sugar, taste the batter and say 'too sweet', then I'd add a pinch of salt, taste again and say 'too salty'. I think I eventually managed to achieve a tasty balance, but it was a psychologically and intellectually challenging process for sure, and I ate a lot of raw batter along the way! In the end, the most useful way I found of thinking about the book was as a hand-made gift to the reader. I wanted it to be the best gift it could possibly be. Now it's out in the world and people seem to be responding to it really positively, I'm enormously relieved. It makes me feel like all the overwhelm was worth it.

Illustrations by @worrylines

“WHAT I HAVEN'T BEEN WORRYING ABOUT RECENTLY IS THE POSSIBILITY THAT I COULD BE SWOOPED BY A BAT AND THAT ITS TALONS COULD GET CAUGHT IN MY HAIR. BUT NOW, OF COURSE, I AM ALSO VERY WORRIED ABOUT THAT.”



DESTIGMATIZING

This section of the magazine addresses the realities of mental health issues and aims to expose stigmas and myths surrounding certain mental health issues. It addresses how these stigmas come about and their individual, societal and global impact. In this issue, Juliette shines light on the relatively unexplored concept of misophonia while Megan exposes the misconceptions surrounding substance use disorders.

RHEA NAZIR

From Chemicals to Community: Re-framing Substance Use Disorder

CONTENT WARNING: Mention of addiction; substance abuse; related images.

Written by: Megan

Heaven



“CLEARLY, THINGS AREN'T WORKING.”

Substance use disorder (SUD) remains perhaps one of the most stigmatised mental illnesses today. Whether it be the derogatory slang used everyday for 'junkies' and 'smackheads', or policy-makers and clinicians preferring a hardline, unsympathetic approach to addicts, our culture propels a system of blame and shame.

As well as preventing people accessing the help they need for fear of judgement, this stigma only further isolates those suffering SUD, which then correlates to further drug misuse (Muller, Skurtviet & Clausen, 1974). This damaging stigma is undoubtedly propelled by the nature of addiction and drug policy in the

West: the so-called 'War on Drugs.' Beginning as early as the 1930s, this prohibitive, punitive approach has been exhausted and the results are in: in 2020, rates of drug poisoning in England and Wales hit the highest level since records began (Office for National Statistics, 2021), and rates of drug deaths in Scotland have since reached the highest in Europe (BBC, 2021). Clearly, things aren't working.

But why am I writing about this here, in a psychology and neuroscience magazine? I believe psychology has the power and knowledge to guide this necessary reformation if only we start to think about things a little differently. Look away neuroscientists, this may hurt - but I don't think

reductionist science is the answer here. Sure, understanding genetic predisposition and neurochemical interactions helps, but that clearly doesn't give the whole picture. After all, if I told you I was going to go take heroin every day for a month, it'd be pretty safe to assume I'd end up addicted, but if I broke my back and was on morphine - which is chemically very similar to heroin - for a month, you wouldn't expect to be checking me into rehab. That's not to deny medical opioid issues by the way, that's a problem too, but not quite to the same extent. The bottom line is clear: context matters, so how can we truly help SUD without looking more holistically?

It's hard to know exactly what context matters here, but some light is shed by Bruce Alexander's 1960s 'Rat Park' experiments. I won't bore you with the details, but the crux of this study was this: when left in a small cage alone with access to plain and cocaine/heroin-laced water, all of the rats involved preferred the drugged water, so much so they all overdosed and died. Pretty morbid, right? However, when in a "Rat Park" with access to space to play, friends, sex and endless cheese, the rats substantially preferred the normal water, only sporadically drinking the laced water and never to the point of overdose. Basically, meeting socioemotional needs reduces addictive tendencies with drugs.

Don't worry, I've noticed the elephant in the room; rats aren't humans, and generalising just this study to such vital reform may be a stretch. So, let's talk about two real-life, very much human examples of this concept.

First, data from the Vietnam War highlighted a worrying increase in heroin use in deployed US troops to such an extent that one in five troops experienced heroin addiction at some point in their tour (Stanton, 1976). So was the US awash with ex-veteran addicts when troops returned home? No - in fact, after three years home, 95% of troops were no longer regularly taking heroin (Robins, Davis & Nurco, 1974). This makes sense given the extremity of the traumatic and fast-paced nature of

war compared to everyday life, and it clearly demonstrates the importance of social and emotional context in addiction.

Secondly, economic deprivation is a crucial factor in the prevalence of SUD. Here in Scotland, those in the most deprived areas were 18x as likely to have drug-related deaths than age-matched people in the least deprived areas (National Records of Scotland, 2021), and in England and Wales almost one-fifth of adults in addiction treatment reported housing issues (Public Health England, 2020). Such extreme variation based on socioeconomic environment further reiterates the need for context in the conversation surrounding SUD.



Euphoria (2019-present)

“DON'T WORRY, I'VE NOTICED THE ELEPHANT IN THE ROOM; RATS AREN'T HUMANS, AND GENERALISING JUST THIS STUDY TO SUCH VITAL REFORM MAY BE A STRETCH.”



Beautiful Boy (2018)

“THESE CHANGES UNDERPIN THE EVOLUTION OF THE NARRATIVE SURROUNDING ADDICTION FROM ONE THAT IS PUNITIVE, SHAMING AND JUDGEMENTAL TO ONE WHERE SUFFERERS ARE TREATED WITH DIGNITY, SYMPATHY AND CARE - THE WAY WE TREAT ALL OTHER PEOPLE SUFFERING AN ILLNESS, BECAUSE THAT'S WHAT THEY ARE.”

As well as the War on Drugs not working, nor is our current treatment with only 47% of those in SUD treatment in England leaving it free from dependence (Public Health England, 2020). Therefore, to improve both lived experiences of and stigma around addiction, we need a complete overhaul of our system - no small feat, I know.

Perhaps the best case study of what-a-good-one-looks-like is Portugal, who not only decriminalised drugs but also focused on re-engaging users in the community and improving public perceptions of them. This involved a comprehensive scheme of job creation, entrepreneurial empowerment and social engagement. 20 years later, it's clear this worked: HIV infections, number of people in treatment services, and problematic drug use have all decreased significantly (Drug Policy Alliance, 2018). These changes underpin the evolution of the narrative surrounding addiction from one that is punitive, shaming and judgemental to one where sufferers are treated with dignity, sympathy and care - the way we treat all other people suffering an illness, because that's what they are.

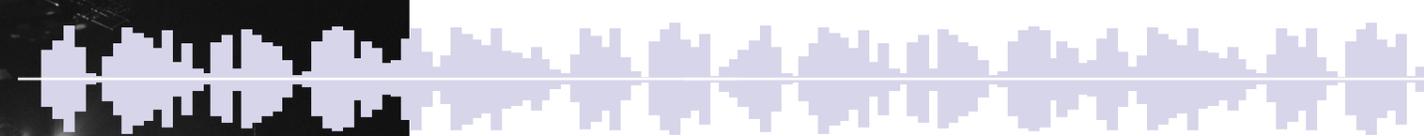
So what can we learn from this? Being around people with addiction is hard, I understand this, but treating them with dignity and respect, reducing isolation, meeting their socioemotional needs and focusing our approach on community and connection will de-stigmatise SUD, ultimately reducing its occurrence and the pain associated with it. Language matters, and even just the way we talk about these people and this illness influences the stigma around it - something as simple as swapping "drug addiction" for "substance use disorder" goes a long way to emphasise that this is an illness, and like any other illness, it's nothing to be ashamed of.

As psychologists, taking a more holistic approach in understanding SUD promotes a more effective and comprehensive treatment system and ultimately changes the lens through which we view substance use and those involved with it. After all, perhaps compassion is our most powerful weapon in the War on Drugs.



THE NEW MEDICAL PHENOMENON: *AN ALLERGY TO SOUND?*

Written by: Juliette Balchin



MISOPHONIA? What does that word mean? Where has it come from? I'm sure, even if this is not your first time encountering the word, one of those questions just crossed your mind.

WHAT DOES IT MEAN? Taking the literal definition of the word, 'Misophonia' means: "a hatred, allergy or phobia of sound." Imagine walking into a room and having the potential to experience an allergic reaction to any single sound that you might hear. Or even worse, not even knowing which sounds will cause such a reaction. I imagine you're thinking that wouldn't be a very pleasant experience.

The diagnosis of 'Misophonia' isn't that far off the literal translation from the Greek terms: 'misos' (hate) and 'foni' (voice). Although a relatively new disorder to be researched, professionals have seemed to reach an agreement on the broad definition of this neurological condition.

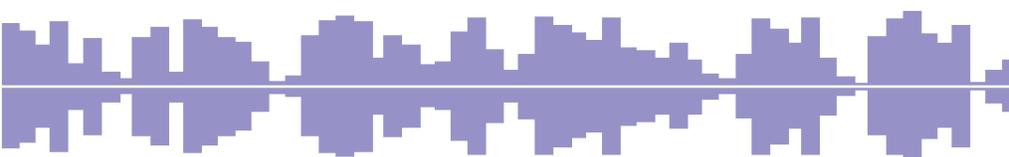
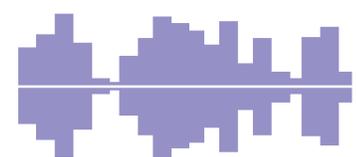
'A disorder where people have abnormally strong and negative reactions to ordinary sounds.' [Medical News Today]

'Known as selective-sound sensitivity syndrome, it's a genuine abnormality of the brain with both psychological and physiological symptoms...this hypersensitivity to sound causes a fight-or-flight response in people...can interfere with their daily lives.' [Healthline: Ryan-Evans, 2017]

'Hypersensitivity', 'abnormal reactions' and 'fight-or-flight' are recurring themes within professionals diagnosis and observation of symptoms. To provide an explicit understanding of the consequences of these symptoms, I've created an analogy to present how disruptive this can be:

Imagine you're walking through a forest late in the afternoon. There is a slight chill in the air and the sun is just about to set. You're a little concerned about walking in the dark – your mind keeps playing tricks on you, making you see flashes of things that aren't really there, or hearing soft rustles that are only really the wind. As a result, you're on edge. Your senses are involuntarily heightened in anticipation for what you might come across. Then everything calms down. You keep walking and slowly your brain starts to relax, convinced that there is nothing to be worried about. You can see the house you're staying at through an opening in the trees. Slowly, your heightened senses, your body tensed in anxiety over the looming darkness of the wood, begins to reduce. You feel safer.

“THERE IS A SLIGHT CHILL IN THE AIR AND THE SUN IS JUST ABOUT TO SET.”



CONTENT WARNING:
Detailed description of a sensitive sensory experiences; anxiety; low mood; cartoon images of brains.



But then, just as you continue walking towards the welcoming house, a bear wanders onto your path. You freeze, images and thoughts about every possible scenario from there on rushing into your brain, flooding any rational, logical part of your senses as the large creature lumbers into view. Your heart begins to race, your eyes grow wide and you can feel the sudden urge to pelt forward and run as fast as you can.

All you have to do is escape. Escape and everything will be fine. It doesn't matter how, or why. Your brain is simply telling you to get yourself and your panicked state out of that terrifying situation. Adrenaline floods your body, your fingers tingle, your legs suddenly feel as if they can run a marathon and, you cannot stop yourself as you hurtle away. You don't stop running until the bear is no longer in sight. And even then, your heart takes longer to return to a slow, rhythmic beat. Your mind takes even longer than that to reassure you the bear has not followed behind.

This is a prime example of a fight-or-flight reaction. Granted, it's an uncommon situation within the UK, but it explicitly details the processes of the instinctive experience. I'm not saying every person who has misophonia sees a bear whenever they hear a sound. Nor am I saying they hurtle out of the room every time they experience a reaction (although, from experience, that can happen). But this adrenaline rush, the idea of needing to escape and the frantic psychological and physiological reactions drawn from this example can be and are experienced. The racing heart, the heightened senses, the reduce of all logic and rationale and the frantic need to escape the situation; all these are possible reactions from someone suffering with misophonia.

To give an idea of how broad these reactions can be, however, Psychology Today[i] puts some of the findings quite nicely, referring to reactions as causing: "sympathetic nervous system arousal and aversive emotions, which then become associated in memory and consequently increase upon exposure." They refer to reactions towards some visual triggers, such as repetitive rocking and the experience of irritation and disgust, in addition to the example I gave, of intense anxiety and anger.

WHERE HAS IT COME FROM? (Or more accurately: what causes a reaction?)

As a relatively recently researched disorder (as of 2001), there is not an extensive amount of research or scientific information I can draw from to give you a balanced, reasonable view on the causes and neurological impacts of misophonia. But I've tried to pool together as clear an explanation as possible.

TheHearingJournal[ii] explains the neurological processes quite well. Research demonstrated that exposure to 'trigger sounds' increased neural activity in the 'anterior insular cortex'. They consider this currently to be the strongest piece of evidence towards what might cause such intense reaction in misophonia studies.

This suggests is that a trigger sound is heard, and it increases activity within areas such as these. This causes the various reactions you may see a misophonia sufferer display.

“THIS IS A PRIME EXAMPLE OF A FIGHT OR FLIGHT REACTION.”

It's not a perfect explanation and it doesn't give an explanation as to WHY some people are more sensitive to selective sounds than others. But it hopefully gives a bit of an idea what happens within the brain when a trigger sound is heard, and show that 'Selective Sensitive Sound Syndrome', '4S' or 'Misophonia' is a neurological condition that cannot easily be regulated or 'switched off'.

DAMAGING STIGMA?

As with a lot of conditions and 'exciting new discoveries' in the 21st Century, a lot of miscommunication and stigma has arisen from social media and 'pop culture' articles such as Buzzfeed. With these misinformed articles making the condition - which they dilute down simply to a hatred of eating sounds - 'trendy' and many of the reactions by sufferers appearing anti-social, it makes managing symptoms immensely more difficult.

Tom, from the blog 'Allergic to Sound' explains how many medical professionals are still in the dark about Misophonia and less than 200,000 'known cases' have approached diagnosis. I myself, have yet to meet a GP or therapist who knows the official term for "this sensitivity to sound thing" (A way one GP I met described it). Only one clinical psychologist I met knew the term and she admitted her understanding was fairly limited. Lack of professional understanding simply increases stigma around the condition among the general public.

As processing of trigger sounds and the initial symptoms of distress and fear are usually internalised by the individual, it is often difficult for observers to understand how damaging Misophonia can actually be. Much of the stigma and misunderstanding derives from its lack of awareness within the public eye and it is possible many will consider an explanation of 'Misophonia' to simply be an excuse for poor or disruptive behaviour. Because of course: how could someone possibly be 'allergic to sound'? To many who have not experienced or encountered the neurological condition before, I've noticed it seems difficult to believe.

Many Misophonia sufferers begin displaying symptoms around the age of 13; prime age for beginning a new school and making a good impression. Curious at how disruptive symptoms might be within a school environment, I searched up 'Forms of Disruptive Behaviour in Classrooms', to which I received several points which risk placing a young sufferer of Misophonia under the bracket of disruptive: "Disconnecting from assigned work... aggression towards others...interrupting a lesson... not listening..." All of these have the potential to be caused by unwanted trigger sounds and exasperation from the student at not being believed or understood, which holds heavy implications for the student and how they are perceived within the classroom environment.

In order to reduce stigma, therefore, research into Misophonia and clear, understandable results must be presented to the general population. With each year, scientific research into this condition increases which only confirms why it should be accepted and acknowledged appropriately, as a legitimate neurological condition.



“HOW COULD SOMEONE POSSIBLY BE ALLERGIC TO SOUND?”



EVER THOUGHT ABOUT

Ever thought about why two human beings in exactly the same situation can make two completely different choices? How our dreams change the conscious decisions we make? Why we judge other people? What makes people believe in the supernatural?

This section is meant to inspire curiosity about the little things we do every day and how they are linked to our psychology: every person we talk to, what we choose to eat, the paths we take in life, the way we perceive reality... here, we explore how our biology controls how we make those decisions.

ANNIKA CHERIAN

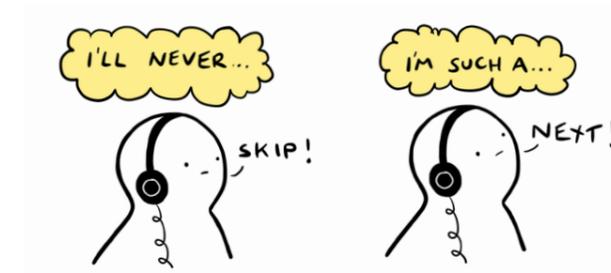
Ever thought about the link between what goes in your mouth and what goes on in your brain?

EATING YOUR WAY TO BETTER WELLBEING: THE PSYCHOLOGY OF FOOD & MENTAL HEALTH.

CONTENT WARNING: Mention of eating disorders

Written by: Lauren Deane

The topic of how food impacts the body has been studied quite extensively. The potential risks associated with the type of food consumed and not just physical, but mental health is surprising and may make you be more inclined to think more about having a balanced diet.



Research suggests that 'healthier' diets can provide some protection against depressive symptoms and disorders. 'Healthy' referring to a 'Mediterranean-style' eating pattern whereby diets include garlic, peppers, mushrooms, salad greens, pasta, and even red wine, which was correlated with a 17% reduction in the prevalence of depressive symptoms 3 years later. A study of Spanish adolescents found that those who ate a good quality breakfast, reported lower perceived stress and had lower levels of depression. Also, a study of London based office staff between the ages of 35 and 55 similarly found that those who ate the most 'whole food', were correlated with lower incidences of depression.

A study of Japanese adults found that dietary folate intake was significantly correlated with reduced depressive symptoms in men, although did not find this relationship in women. A study of Spanish adults found that participants who consumed a moderate quantity of fish, between 83.4g and 112g per day, had a 30% relative risk reduction of stress, anxiety, or depression. Furthermore, a meta-analysis cautiously concluded that omega-3 or fish oil consumption significantly correlates with reduced incidence of depression.

Do you have a sweet tooth? Research shows that as sugar consumption rates increased, the annual rate of major depression increased, and that for 6 countries which had

the data available for primary analysis to be undertaken, there was a highly significant association between sugar consumption and the annual rate of depression. A study of adolescents in Ghana found that those who reported feeling anxious, reported less soft carbonated drink consumption. However, interestingly, a study of Korean adults found that soft carbonated drink consumption was associated with a lower risk of depression in men, and a higher risk of depression in women.

Additionally, a study conducted in Spain found that intake of fast food- characterized by consumption of hamburgers, sausages, and pizza, was strongly correlated with risk of depression, with those who ate the highest quantity of fast food having a 40% higher risk of depression.

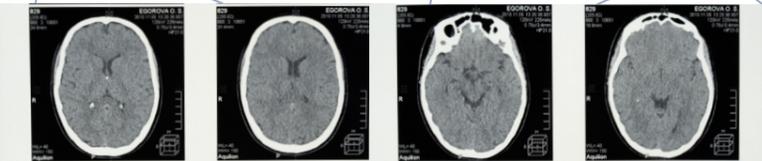
Ultimately, this does not mean that you need to obliterate every morsal of sugar and fast food from your diet. It is important to not get too obsessed with these studies, with Orthorexia Nervosa - the eating disorder characterized by a fixation on healthy eating, being reported at levels of between 6.9% and 88.7% across countries and populations. It is important to note that correlation does not imply causation, and although these findings are useful when considering how to protect your wellbeing, becoming obsessive about it could have the opposite intended effect. It may be better to have a balanced diet incorporating the Mediterranean diet principles but also allowing yourself sweet things and fast food at times, fostering an approach to eating which benefits your wellbeing but that is sustainable.

Illustrations by @worrylines



The Default Mode Network: Rumination & Depression

Written by: Lesley Motherwell



“AN INTRIGUING FINDING IS THAT AN OVERACTIVE DMN CAN BE REGULATED BY A NUMBER OF SEEMINGLY SIMPLE INTERVENTIONS, LIKE ACUPUNCTURE AND MEDITATION, THANKS TO THEIR SOOTHING EFFECT.”

The brain is a beautiful thing. A physical store of abstract characteristics that create our identity, both as humans and as individuals. Although the brain's true colours are still an enigma, our understanding of how it processes and stores “us” is improving. An interesting concept within this topic is the discovery of the default mode network (henceforth, the DMN).

The history of this brain network dates back to the 1970s, when researcher David Ingvar identified increased blood flow, and therefore brain activity, in specific parts of the brain, even when the participants were at rest, i.e. not performing any mental tasks. Later, these findings correlated with neuroimaging data demonstrating increased activity particularly in the frontal lobes - a brain area connected to our identity and consciousness. Hence, the name ‘default’ emerged - brain areas active at a default rest state, regardless of external stimulation.

In short, it's a collection of interconnected brain regions which show low activity when we are engaged in a specific task that requires attention. It becomes active when we are at rest; daydreaming, monitoring our environment, thinking without a specific goal in mind. It is thought to include many high functioning brain regions; including the medial prefrontal cortex, posterior cingulate cortex, lateral temporal cortex, and the hippocampal formation.

But what is its significance nowadays? An overactive default mode network appears to be linked with mental illness, like depression, anxiety, and even schizophrenia. Interestingly, the DMN has been reported to show some overlap in activity patterns across different mental health conditions, but with some distinguishing features. There are even grounds to suggest that this network has clinical significance for other psychological conditions, such as Alzheimer's, autism, schizophrenia and PTSD (Buckner et al., 2008).

Depression is becoming an increasingly common mental illness, particularly in young adults. Insight into how our neurophysiology gives rise to these symptoms could contribute greatly in our mission to improve diagnosis and treatment. Research suggests an association between DMN dominating over other brain areas while at rest and depressive symptoms, including negative rumination and self-directed thoughts

(Berman et al., 2011). A meta-analysis, conducted by Kaiser and colleagues in 2015, found that hyper-connections within the network, as well as between the DMN and frontal lobe, play a role in producing self-directed judgements and thoughts. This correlation could be a plausible explanation for heightened rumination style of thinking, characterised by obsessive overthinking, seen in depressed individuals. Thus, there is a possibility that abnormal connections within the DMN changes the way people view themselves and events in their life, making them more susceptible to developing depressive symptoms. Moreover, a study comparing connectivity strength of the DMN between individuals with major depression and healthy controls found more unstable connections in the former group (Wise et al., 2017).

An intriguing finding is that an overactive DMN can be regulated by a number of seemingly simple interventions, like acupuncture and meditation, thanks to their soothing effect. However, it can also be influenced by more extreme practices like deep brain stimulation and psychedelic drugs, which may help balance these unstable connections (Carhart-Harris et al., 2016). These discoveries can prove useful as a form of treatment in conjunction with therapy and medication.

The existence of this network is still debated and remains quite a controversial topic. Even those that have endorsed it admit uncertainty and demand further research - a cliché in psychology. But whatever evidence we possess is a huge step in understanding our identity and well-being on a deeper level. Some criticise the concept of the default mode for its inutility in explaining brain function. Most commonly it is argued that a resting brain does more processing than a brain engaged with a demanding task. Therefore, there cannot be a unique pattern in brain activity during rest. Another argument is that it is difficult to define “resting” as a unique form of wakefulness. Although promising, the boundaries of this network seem hazy and undefined.

While these criticisms should be taken into account, the truth is that it is impossible to explain mental health issues using a single mechanism with any amount of certainty. Even if the DMN in isolation does not explain depression, at minimum it has sparked significant interest in comprehensively understanding brain function and our identity, even when not involved in a specific task. At best, it provides hope for those seeking support and answers for their mental state.

ATTACHMENT THEORY

– AN OLD THEORY FOR NEW THINKING?

Written by: Lily Mugford

In psychological research, the importance of our early childhood years is continuously reinforced. Experience is the engine driving most brain development, meaning it is no surprise that adverse childhood experiences are shown to have lasting effects.



Over the last 50 years, significant research has explored the different relationships formed in childhood (particularly investigating attachment patterns in infancy) and the consequences of these bonds in later life. These aspects have been used as a lens to understand a range of social issues including mental illness and educational outcomes. Attachment theory focuses on the enduring influence of the infant's bond to their primary caregiver (often the mother). A key idea of attachment theory is the secure-base phenomenon, whereby infants use their attachment figure (caregiver) as a safe base from which to explore the world. While attachment theory focuses predominantly on the mother as the primary caregiver, other family members including the father or grandparents may provide a source of early attachment. In fact, recent literature has even attempted to explore the more nuanced forms of attachment: attachment in mental illness (e.g., to the anorexic voice in eating disorders), or to romantic partners in later life.

What are the different types of attachment?

Attachment research has identified 4 main forms of attachment in infants, including:

Secure attachment (65-70% of infants) – characterised by the caregiver being responsive to the infant's needs and the infant's development of trust/confidence from these interactions.

Insecure attachment, that is comprised of:

Avoidant attachment (20-25% of infants) – characterised by the infant showing little preference

for their caregiver over strangers, both avoidant and resistant showing ambivalence when their caregiver leaves/returns.

Resistant attachment (10% of infants) – characterised by a relationship centred around excessive dependency, such as difficulty functioning without their caregiver.



Disorganised-disoriented attachment – characterised by infants displaying confused/disoriented behaviours, being

to their caregiver in different circumstances.

Though this may seem broad and perhaps over-generalised, these different attachment styles seem to remain stable between cultures and potentially throughout one's lifetime – highlighting that understanding attachment and its consequences may be important in later life. In fact, research has suggested that your attachment style is likely to influence who you select as a partner – you are more likely to date an individual with a similar attachment style. Your attachment style is also shown to influence how you perceive

your relationship. For example, individuals with resistant attachment styles reported feeling increased jealousy and clinginess in their relationships. This finding also extended to their previous relationships; finding individuals with more avoidant/resistant attachment styles harboured more negative feelings than secure individuals to ex-partners.

What does attachment look like in adulthood?

When extending attachment patterns to analyse adulthood relationships, research has identified several common themes:



Secure attachment – ability to have trusting/durable relations; able to share feelings with partners/friends and have high esteem about romantic relationships.

Avoidant attachment – may struggle with intimacy and building close relationships. Consequently, when relationships break down individuals may appear unfazed and struggle to communicate their feelings.

Resistant attachment – are more reluctant to get close to others and worry that romantic feelings may not be reciprocated. Studies have shown that this insecurity can lead to the person feeling distraught when relationships break down.

Disorganised attachment – inconsistency is perhaps a defining feature of relationships under this attachment style. Individuals may feel fearful to trust romantic partners for support, and thus consequently feel as though their partners do not support them – leading to increased withdrawal.

Future directions

While appreciating the early years is important, it is necessary to emphasize that attachment research is not met without flaws. Specifically, feminist scholars have criticised attachment theory as a sexist attack that places blame on working mothers to control their caregiving. This should be appreciated when understanding attachment theory, acknowledging that attachment research was initially published in the 1960s during which expectations for women were largely limited to being homemakers/looking after children. In present day Today, these societal expectations are not as pervasive – we are seeing a greater number of women in the workplace, “house-

husbands”, and increased same-sex households, suggesting the role of women as the “primary caregiver” is changing and attachment research needs updating to account for this.



Another large criticism of attachment theory is that few solutions have been provided for how we can overcome negative attachment patterns in childhood to form fulfilling relationships in later life. Despite older studies suggesting that attachment patterns remain stable throughout your lifetime, more recent studies argue that attachment style can and does change depending on the quality of your relationships in adulthood and, more importantly, your susceptibility to change. This would be an interesting approach for psychological research to adopt – to develop a more comprehensive and positive insight into attachment theory. This is something that may help improve future therapeutic interventions and understand how important our childhood experiences actually are.

Illustrations by @worrylines

CONVERGENCE

The intentions for 'convergence' are connection and exploration. It is an opportunity to investigate how psychology interacts with other subjects and the impact the relationship has on both fields. It promotes an engaging platform for students to evaluate the forever evolving relationship between the world and the human mind. It also allows them to understand further their subjects and psychology in a more profound, more liberal sense. The first article in this section analyzes the mental processes people experience when perceiving art and provides their own research on aesthetic judgment between art experts and amateurs. The second article aims to understand a field of study known as neurotheology, which seeks to understand the relationship between religion and brain science.

SIDNEY MORE



HOW ART EXPERTS AND ART LAYMEN DIFFER IN THEIR MENTAL PROCESSING OF ART OBJECTS

Written by: Berit Barthelmes

Art impressions are special experiences and stand out from everyday sensations. In some cases, there is even talk of a luxurious impression, which adds a little optimism to the dreary, purposeful process of perception in everyday life (Gibson, 1971; Markovi, 2012).

The interest in understanding the cognitive process that art viewers go through during their judgment, which components are part of this process and which variables influence it has been present since the 19th century. Gustav T. Fechner, a German experimental psychologist, philosopher, and physicist, investigated the possibilities of making aesthetic impressions measurable and carried out investigations in a museum context, among other things (Fechner, 1876). It was in this context that he introduced the psychological field of experimental aesthetics in 1876, which focuses on the subject in its measurements (Allesch, 2018). Thus Fechner contrasted the aesthetic "from above" propagated by German philosopher Alexander G. Baumgarten with an aesthetic "from below" (Baumgarten & Mirbach, 2007). Aesthetics "from above" means the understanding of aesthetics in traditional philosophy and literary studies, which view aesthetics almost exclusively in the context of art. The beauty of landscapes, utilitarian objects, or scientific theories were excluded or dismissed as a marginal aspect. In contrast, aesthetics "from below" strives for an empirical basis. It considers the experience of beauty as an everyday psychological phenomenon. The method of choice here was and is usually the (psychological) experiment (Kebeck & Schroll, 2011). This means, experimental aesthetics, as one of the oldest fields of study in psychological research, is concerned with aesthetic experiences in all imaginable ways (e.g. looking at a beautiful landscape, feeling touched by a colorful butterfly passing by or enjoying a warm breeze at the sea while watching the endlessly open ocean). In experimental

aesthetics, as the term implies, it is aimed to make aesthetic impressions measurable and gain insight into cognitive mechanisms underlying those impressions.

Today, the fascination with the study of artistic impressions seems to be still present – if not even stronger in a particular way. Modern measuring instruments and methods make it possible to measure even more precisely and create a comparatively neutral environment in the laboratory.

When investigating the mental processing of art, the investigation can be divided at least into subject or 'object related' (Schulz & Hayn-Leichsenring, 2017). Either the art object with its individual components is the focus of attention or the art viewer:

a) Object-related investigations of art deal with the question of whether the variation of individual components or characteristics of an art object results in concrete changes in the art judgment of an observer. Constructs such as symmetry/asymmetry (Gartus, Völker, & Leder, 2020), complexity (Berlyne, 1971; Reber, Schwarz, & Winkielman, 2004) or, the examination of manipulated works of art in comparison to the original (Pazzaglia et al., 2020) can further provide information about which variables influence the human gaze in forming a judgment on art and how.

b) Subject-related investigations, on the other hand, focus on art viewers and their characteristics. Art viewers can obviously bring along very different characteristics as single individuals. Variations can occur in age, gender, experience with art, mood at the time of measurement, and personality traits, and are just some of the variables that make the study of art impressions of individuals so diverse (Leder, Ring, & Dressler, 2013).

Art expertise, in particular, is often examined as a variable in connection with the formation of art judgments and used for the selection, differentiation and classification of subjects. This is certainly also related to the fact that art as an object of research provides a dichotomization. Whether or not a person brings art expertise to the assessment of a work of art has an obvious influence on their motivation to assess an art object and on how a work of art is analyzed and assessed by them (P. Hekkert & Van Wieringen, 1996; Smith & DeCoster, 2000; Strack & Deutsch, 2004).

In numerous studies regarding art impressions, so-called art experts and art laymen, i.e. people with more or less experience and expertise in the domain of art, are involved. Art experts exhibit an apparently more selective evaluation process when evaluating art objects than art laymen (Kirk, Harvey, & Montague, 2011). Art experts seem to describe works of art less on the basis of their affective qualities than on their structure (van Paasschen, Bacci, & Melcher, 2015) and show different emotional responses in the evaluation of artworks than art laymen (Locher, Smith, & Smith, 2001). Even the examination of the eye movements of art experts and art laymen reveals differences (Pihko et al., 2011). Pihko et al. found that viewing strategies concerning the target, the location of the target and the path of fixations differed between art experts and art laymen. It is perhaps not surprising that art experts generally find art more interesting than art laymen (Silvia, 2006). Correspondingly, art experts exhibit a higher tendency to explore or to be curious and an apparently altered electrocortical activity compared to art laymen when processing art objects (Pang, Nadal, Müller-Paul, Rosenberg, & Klein, 2013). Finally, art experts are more interested in the formal criticisms of a work of art than art laymen (Parsons, 1987), taking into account their previous knowledge (Leder, 2013).

"I WOULD LIKE TO POINT OUT THAT I AM NOT AN ART EXPERT, BUT A LAYMAN. I HAVE OFTEN NOTICED THAT THE CONTENT OF A WORK OF ART ATTRACTS ME MORE THAN ITS FORMAL AND TECHNICAL QUALITIES, WHICH THE ARTIST IS PRIMARILY INTERESTED IN. FOR MANY MEANS AND SOME EFFECTS OF ART I ACTUALLY LACK THE RIGHT UNDERSTANDING."

- SIGMUND FREUD, 1914, P. 15



Experts and laymen

In his essay *Moses and Michelangelo* (Freud, 1914), Sigmund Freud deals with the fact of being an art layman (whether this is true remains open). As already mentioned, literature provides evidence that art laymen seem to focus more on the content than on the formalities of a painting (Schulz & Hayn-Leichsenring, 2017). This assumption seems to be common sense and, at the same time, reflects an essential distinction in the study of art viewers, which is essential for the study described below. It is a common assumption that there is a more subjective-related judgment and a more objective-related judgment. In the first case, when viewing a portrait, the viewer tends to concentrate more on the person depicted. In the latter case, the focus lies on formalities, such as the style of the painter or the coloring.

Differences between so-called art experts and art laymen and their perception and evaluation of art objects have been studied extensively in experimental psychology. Based on a contemporary model of aesthetic experience, two components of the mental processing of art could be differentiated: a cognitive (concerning e.g. thinking about an art work) and an affective (concerning e.g. the emotions that arise when you look at an art work) component. For the conducted study, it was assumed that art experts and art laymen focus more on one of the two components when viewing a portrait and that this component has a greater influence on their aesthetic judgment. This assumption was investigated in the form of an experiment in lecture halls. The test subjects were students of art history and psychology at the University of Wuerzburg, Germany. In addition, a measurement repetition was carried out. Questionnaires were used to collect data to assess the aesthetics of a painting and the attractiveness of the person depicted in it. In addition to the quasi-objective and quasi-subjective ratings, an expertise score based on self-assessment was collected.



The results showed a significantly higher correlation between the aesthetic and attractiveness ratings of art laymen than of art experts. In the case of art laymen, quasi-objective criteria (aesthetics) seem to merge more strongly with quasi subjective criteria (attractiveness) than among art experts. Moreover, the assumption of idiosyncratic art experts (with more "individualistic" judgments) was supported rather than an expert consensus. Finally, differences in judgment at the first and between the two measuring points were examined. This revealed a tendency towards a consolidation of judgment. A special feature of this study is the investigation of judgment consistencies and agreements. For this purpose, measured value correlations, concordance and consistency measures were computed. Our results support the Model of Aesthetic Experience by Leder et al. (2004). It seems reasonable to assume that the process of evaluating art takes place on a more cognitive level on the one hand and on a more emotional or affective level on the other. This is reflected in the fact that art experts are able to pay attention to formal aspects of a work of art and are thus better able to explicitly separate emotional components from the cognitive/analytical perspective. Thus, the aesthetic judgment of experts is less distorted by emotional aspects when viewing a work of art than the aesthetic judgment of laymen. In the case of art laymen, the pseudo-formal level (laymen may be less familiar with formal criteria by which a work of art is evaluated) is mixed with emotional aspects they feel while viewing a work of art.

What does this essentially show us? That in the case of art laymen and the formation of their aesthetic judgment, it is not always possible to clearly differentiate what their judgment is based on.

Do you find the topic interesting or want to know more?

Please write to: berittheresa.barthelmes@uzh.ch

in the Brain Written by: Toby Engelking

Stephen Jay Gould (1997) once argued that science and religion could be described as “non-overlapping magisteria”. He suggested that they each represent entirely different areas of enquiry. Psychology and neuroscience have often seen themselves as separate from that kind of science, perhaps due to the seeming incongruence of psychologists’ quasi-religious philosophies such as Maslow’s (1943) search for self-actualisation, or perhaps it is due to Freudian-style reductionism, which claims that religion can be reduced to nothing more than unconscious wish fulfilment. Yet, I would like to suggest that Gould’s argument may well extend to psychology and neuroscience. Like the other sciences, these too are not equipped to divine the way that things should be, such as how people should act.

The limits of modern scientism (the use of science in realms beyond its power) comes from the lens with which science often views the world. Science is methodologically natural. It is a study of processes that operate within nature. We can forget that this is not a metaphysical claim; it is simply a method for enquiring about the world. Harking back to Hume’s (1793) is-ought fallacy: science says things about the way that the world is and not necessarily anything about the way that the world ought to be. Perhaps this is the role of theology. Science can describe the material world, including the basis of human behaviour and even which behaviours and mental states bring the most pleasure. Yet maybe theology can describe which physical states and human behaviours are the desirable ones.

It is true, however, that the age of post-enlightenment scientific enquiry has accumulated more knowledge than all of the ages of human history combined. What’s more, the necessity for the materialist, reductionist framework in order for science to work is evident. Science must operate with the assumption that there is nothing more than the physical universe: Richard Dawkins once quipped that science would never work if we wrote off each anomalous data point as due to divine intervention (The God Delusion Debate, 2017). We must assume a deterministic picture of the universe for our studies to work.

Additionally, psychology and neuroscience often have more to say about religion than other sciences. Notable classic works on the topic include William James’ (1902) *Varieties of Religious Experience* and Freud’s (1927) *The Future of an Illusion*. In more recent times, a growing area of research comes from a field known as neurotheology. Yes, that is right, neurotheology – a field that aims to understand religion by understanding the workings of the brain.

Interestingly, it has often been argued that epileptic seizures which stimulate a particular region of the temporal lobe can explain the religiosity of many historical figures such as Fyodor Dostoevsky and even St Paul. Indeed, for

this reason, epilepsy was known as “the sacred disease” (Straiton, 2020) to many ancient societies. In the 1980s, a man named Michael Persinger claimed that he had developed a helmet that stimulated just this region of the temporal lobe associated with religious experience. Persinger (1983) claimed that 80% of participants reported a religious experience. Yet more recent studies have not been able to replicate these results, including, famously, a BBC documentary in which Richard Dawkins was subject to the helmet and found no such experience (Persinger vs Dawkins: The God Helmet, 2005). It is also true that Persinger used no control group; it does not take a psychologist to spot the placebo at work there!

Another famous experiment in the world of neurotheology was conducted by Dean Hamer. In 2005, he published a book titled *The God Gene*. Hamer claimed to have found a gene in human DNA which, depending on the allele people had, could reliably predict whether they believed in God or not. Despite the global attention which the book received, it was heavily criticised for Hamer’s seeming misunderstanding of genetics as well as his creative use of statistics. It is worth noting that Hamer is the same man that claimed to have discovered the “gay gene” in 1993 (Hamer et al., 1993).

However, if these studies turn out to be replicable or future evidence is able to discover a brain area or gene that does predict religiosity, should students studying theology pack their bags and find a useful science that they can occupy their time with? The reviews are mixed. Some might argue yes. Others, such as James Clark, might argue quite the opposite. In his book *God and the Brain*, Clark (2019) argues that a brain area that is tied to religious experience might just be the “agency detecting device” or stamp that we would expect a divine creator to apply. The founder of the University of St Andrews’ psychology and neuroscience department, Professor Malcolm Jeeves, has published numerous books on the topic of religion and science, in fact becoming quite a pop star in the field. Jeeves argues for healthy discussion between the two and, perhaps, sometimes a recognition that there are realms which science is not designed to venture into. Whatever the case, the field of neurotheology will continue to provide a controversial and fascinating area of study.

Perhaps, if psychology or neuroscience is able to comment on the workings of the brain and the origins of religious experience, one may argue that it says nothing of the subjective experience of the individual nor the metaphysics which underpins the phenomenon. And perhaps this is precisely the point. No matter how much we describe the way the minds work, we cannot say much about the way that they ought to work or why they are working at all. Could this be the realm of philosophy and theology? A realm which science is not equipped to venture into?

Next time you are sitting in St Mary’s, looking out the window and pondering how your subject explains away that of those on the other side of the quad, maybe think some more, whichever side of the quad you are on.



CONTROVERSIAL

As always, the Controversial section aims to share our writers' most controversial opinions and highlight some of Psychology's most interesting debates. It is a place where anything goes, and everyone can be as polemical as they want! This issue, Girija talks about Freud (probably the most controversial psychologist to exist) and how his theories see women. I hope everyone enjoys this section as much as I do!

ANA JULIA FERRERA

DOES FREUD'S THEORY ON PSYCHOANALYSIS SEE WOMEN AS LESS MORAL THAN MEN ?



Written by: Girija Dempo



The renaissance played a significant role in creating social integration through trade and expansion of thought, which resulted in groups and individuals exercising their rights of speech and expression across a variety of disciplines. Representation of women in science has been one such field that has sparked emotions of curiosity and controversy over the last decade.

The field of Psychology as a social science and an interdisciplinary subject has also been witness to major social and political

advancements across history. Schafer (2019) argues that Sigmund Freud's theory of psychoanalysis saw the development of physical and psychological characteristics in women as suppressed under the influence of the patriarchy and submissive values defined by alpha males at the time. The concepts surrounding the principles of ego and superego, the Oedipus and Electra complex, procreativity that evolved from biology, aggressive dominance through masculinity, and passive submissive roles were central to ideas of supposed feminine

behaviour and emotions. These areas bring to light debates focused on how Freud generalised the idea of women being less moral than men in his clinical trials and theories using the psychodynamic approach. Evolutionary values viewed the roles played by women at the time as being influenced by Freud's research. These elements were crucially distorted by erroneous presuppositions, rational errors, developmental morals and values that were understated, self-contradictions and unpredictability that can be questioned and investigated till this day.



ING THE
PEREGO,
COMPLEX,
ED FROM

BIOLOGY AGGRESSIVE DOMINANCE

THROUGH
SUBMISSIVE
IDEAS OF SU



It is often prudent to question if the psychodynamic perspective is resentful towards morality. Holt (1980) illustrated how Freud considered himself to be a moral man. He was spiteful and argued against a morality that was constructed and evolved from inhibition defined by orthodox values and traditions based on religion and faith in paranormal beliefs, in addition to negativity towards the pleasure principle and sexual desires. These principles were labelled to be dominant factors that manipulated and had significant effects on sexual reproductive functions of women, which was believed to be the main cause of neuronal dysfunction (specifically neurosis is a condition that affects the brain's ability to process complex and novel information, it involves specific symptoms of anxiety, obsessive behaviours and stress-induced thoughts).

Researchers like Peter Gay (as cited in Cherry, 2022) have dwelled on discussions surrounding Freud's understanding of the feminine self

as being inadequate, and how repressed sexual pleasure could make them hysterical from a long-term perspective. He also describes Freud's primary group and the background he came from, which could explain potential reasons for his controversial immorality towards specific genders. He was the eldest child in his family and developed intense attachment with his mother being her favourite offspring, he shared an extremely traditional relationship with his wife Martha and a thrifty one with his granddaughter. According to Freud, Hysteria can be deeply embedded in experiences surrounding trauma and child sexual abuse and this can have an impact on how emotional, physical and behavioural manipulations are surfaced in the individual's developmental milestones in the future. He eliminated this theory surrounding hysterical behaviours and instead laid emphasis on the function of sexual desires in the development of disease and abnormality in humans.

In conclusion, although Freud's contribution to the field of psychology is infinite, some of us are forced to seek the truth behind limitations that some of his clinical trials and studies posed.

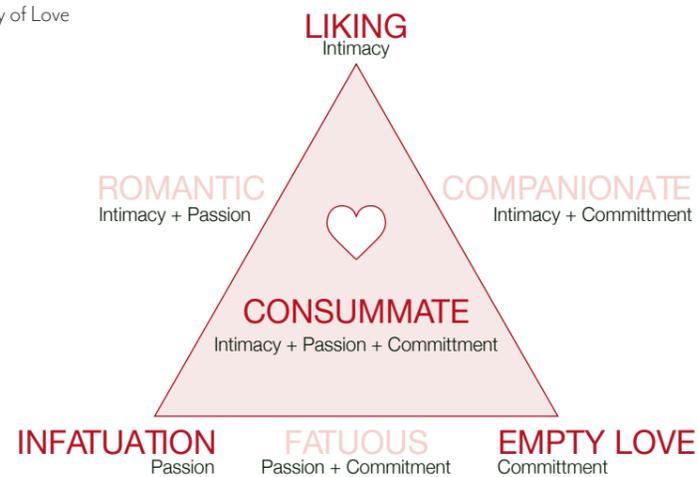
Studies suggest that his approach was patriarchal, marked with values that originated from evolutionary and monotonous systems of thought and self-approration that constituted the traditions of morality and components of theory he worked on through his career in the field of science and experimentation. Rules and principles that define the psychoanalytical approach come from an understanding of how nature versus nurture is perceived in the context of survival, masculinity-femininity, polarities and disjunction between active and passive actions and thought. It is believed that he did have a sense of immaturity in being objective about empirical views surrounding knowledge and biases towards language, pluralism, relativity and morality.

REFERENCES

LOVE

1. Burunat, E. (2016). Love Is Not an Emotion. *Psychology*, 07(14), 1883-1910. <https://doi.org/10.4236/psych.2016.714173>
2. Karandashev, V. (2015). A Cultural Perspective on Romantic Love. *ScholarWorks@GVSU*. <https://scholarworks.gvsu.edu/orpc/vol5/iss4/2/>
3. Love and Happiness. (2012). *Psychology Today*. <https://www.psychologytoday.com/us/blog/am-i-right/201208/love-and-happiness>
4. Sternberg, R. J. (1986) A triangular theory of love. *Psychological Review*, 93, 119-135.
4. Tobore, T. O. (2020). Towards a Comprehensive Theory of Love: The Quadruple Theory. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.00862>
5. Bailey, T. (2019, June 19). The Importance Of Love And Affection In Your Life And Relationships | BetterHelp. [Betterhelp.com; BetterHelp. https://www.betterhelp.com/advice/love/the-importance-of-love-and-affection-in-your-life-and-relationships/](https://www.betterhelp.com/advice/love/the-importance-of-love-and-affection-in-your-life-and-relationships/)

6. Figure 1: The Triangular Theory of Love



FROM CHEMICALS TO COMMUNITY: RE-FRAMING SUBSTANCE USE DISORDER

1. Alexander, B. K., Hadaway, P., & Coombs, R. (1980). Rat park chronicle. *British Columbia medical journal*, 22(2), 32-45.
2. BBC News. (2021). Drug deaths in Scotland reach new record level. Retrieved 11 November 2021, from <https://www.bbc.co.uk/news/uk-scotland-58024296>.
3. Drug Policy Alliance, (2018). Drug Decriminalization in Portugal. Retrieved 10 November 2021, from https://drugpolicy.org/sites/default/files/dpa-drug-decriminalization-portugal-health-human-centered-approach_0.pdf.
4. Muller, A. E., Skurtveit, S., & Clausen, T. (2016). Many correlates of poor quality of life among substance users entering treatment are not addiction-specific. *Health and Quality of Life Outcomes*, 14(1), 1-10.
5. National Records of Scotland. (2021). Drug-related deaths in Scotland in 2020. Retrieved from <https://www.nrscotland.gov.uk/files/statistics/drug-related-deaths/20/drug-related-deaths-20-pub.pdf>
6. Office for National Statistics. (2021). Deaths related to drug poisoning in England and Wales: 2020 registrations. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsrelatedtodrugpoisoninginenglandandwales/2020>
6. Public Health England. (2020). Adult substance misuse treatment statistics 2019 to 2020: report. Retrieved from <https://www.gov.uk/government/statistics/substance-misuse-treatment-for-adults-statistics-2019-to-2020/adult-substance-misuse-treatment-statistics-2019-to-2020-report>
7. Robins, L. N., Davis, D. H., & Nurco, D. N. (1974). How permanent was Vietnam drug addiction?. *American Journal of Public Health*, 64(12_Suppl), 38-43.
8. Stanton, M. D. (1976). Drugs, Vietnam, and the Vietnam veteran: an overview. *The American journal of drug and alcohol abuse*, 3(4), 557-570.

THE NEW MEDICAL PHENOMENON: AN ALLERGY TO SOUND?

<https://www.psychologytoday.com/us/blog/noises/201908/misophonia-misokinesia-and-the-brain>

https://journals.lww.com/thehearingjournal/Fulltext/2020/03000/Misophonia__A_Neurologic,_Psychologic,_and.5.aspx

EATING YOUR WAY TO BETTER WELLBEING: THE PSYCHOLOGY OF FOOD & MENTAL HEALTH.

1. Rienks, J., Dobson, A. & Mishra, G. Mediterranean dietary pattern and prevalence and incidence of depressive symptoms in mid-aged women: results from a large community-based prospective study. *Eur J Clin Nutr* 67, 75–82 (2013). <https://doi.org/10.1038/ejcn.2012.193>
2. Rosario Ferrer-Cascales, Miriam Sánchez-SanSegundo, Nicolás Ruiz-Robledillo, Natalia Albaladejo-Blázquez, Ana Loguna-Pérez, Ana Zaragoza-Martí, Eat or Skip Breakfast? The Important Role of Breakfast Quality for Health-Related Quality of Life, Stress and Depression in Spanish Adolescents, *International Journal of Environmental Research and Public Health*, 10.3390/ijerph15081781, 15, 8, (1781), (2018).
3. Akbaraly, T., Brunner, E., Ferrie, J., Marmot, M., Kivimaki, M., & Singh-Manoux, A. (2009). Dietary pattern and depressive symptoms in middle age. *British Journal of Psychiatry*, 195(5), 408-413. doi:10.1192/bjp.bp.108.058925
4. Murakami, K, Mizoue, T, Sasaki, S, Ohta, M, Sato, M, Matsushita, Y, et al. Dietary intake of folate, other B vitamins, and omega-3 polyunsaturated fatty acids in relation to depressive symptoms in Japanese adults. *Nutrition* 2008; 24: 140–7
5. Sanchez-Villegas, A., Henríquez, P., Figueiras, A., Ortuño, F., Lahortiga, F., & Martínez-González, M. A. (2007). Long chain omega-3 fatty acids intake, fish consumption and mental disorders in the SUN cohort study. *European journal of nutrition*, 46(6), 337-346.
6. Lin, P. Y., & Su, K. P. (2007). A meta-analytic review of double-blind, placebo-controlled trials of antidepressant efficacy of omega-3 fatty acids. *The Journal of clinical psychiatry*, 68(7), 1056–1061. <https://doi.org/10.4088/jcp.v68n0712>
7. Westover, A. N., & Marangell, L. B. (2002). A cross-national relationship between sugar consumption and major depression?. *Depression and anxiety*, 16(3), 118-120.
8. Prince Atorkey, Mariam Akwei, Winifred Asare-Doku, Consumption of carbonated soft drinks among Ghanaian adolescents: associations with socio-demographic factors, health risk factors and psychological distress, *Nutrition and Health*, 10.1177/0260106021996933, (0260106021996933), (2021).
9. Ji-Myung Kim, EunJung Lee, Association between Soft-Drink Intake and Obesity, Depression, and Subjective Health Status of Male and Female Adults, *International Journal of Environmental Research and Public Health*, 10.3390/ijerph181910415, 18, 19, (10415), (2021).
10. Sánchez-Villegas, A., Toledo, E., De Irala, J., Ruiz-Canela, M., Pla-Vidal, J., & Martínez-González, M. (2012). Fast-food and commercial baked goods consumption and the risk of depression. *Public Health Nutrition*, 15(3), 424-432. doi:10.1017/S1368980011001856
11. Niedzielski, A., & Kamińczak-Wojta, N. (2021). Prevalence of Orthorexia Nervosa and Its Diagnostic Tools-A Literature Review. *International journal of environmental research and public health*, 18(10), 5488. <https://doi.org/10.3390/ijerph18105488>
12. Strahler, J. (2020). The dark side of healthy eating: Links between orthorexic eating and mental health. *Nutrients*, 12(12), 3662.

“THE DEFAULT MODE NETWORK: RUMINATION & DEPRESSION”

1. Buckner, R., Andrews-Hanna, J., & Schacter, D. (2008). The Brain's Default Network. *Annals Of The New York Academy Of Sciences*, 1124(1), 1-38. <https://doi.org/10.1196/annals.1440.011>
2. Carhart-Harris, R., Muthukumaraswamy, S., Roseman, L., Kaelen, M., Droog, W., & Murphy, K. et al. (2016). Neural correlates of the LSD experience revealed by multimodal neuroimaging. *Proceedings Of The National Academy Of Sciences*, 113(17), 4853-4858. <https://doi.org/10.1073/pnas.1518377113>
3. Kaiser RH, Andrews-Hanna JR, Wager TD, Pizzagalli DA (2015) . Large-scale network dysfunction in major depressive disorder: a meta-analysis of resting-state functional connectivity. *JAMA Psychiatry*; 72: 603–611.

4. Marc G. Berman, S. Peltier, D. E. Nee, E. Kross, P. J. Deldin, J. Jonides, Depression, rumination and the default network, *Social Cognitive and Affective Neuroscience*, 6(5), Pages 548–555, <https://doi.org/10.1093/scan/nsq080>

5. Wise, T., Marwood, L., Perkins, A. et al. Instability of default mode network connectivity in major depression: a two-sample confirmation study. *Transl Psychiatry* 7, e1105 (2017). <https://doi.org/10.1038/tp.2017.40>

ATTACHMENT THEORY – AN OLD THEORY FOR NEW THINKING?

1. Bretherton, I. (1992) The origins of attachment theory: John Bowlby and Mary Ainsworth, *Developmental Psychology*, 28(5), 759-775.

2. Cassidy, J., Jones, J. D., & Shaver, P. R. (2013). Contributions of attachment theory and research: a framework for future research, translation, and policy. *Development and psychopathology*, 25(4 Pt 2), 1415–1434.

3. Flaherty, S. C. & Sadler, L. S. (2011) A review of attachment theory in the context of adolescent parenting. *Journal of paediatric health care*, 25(2), 114-121

4. Flaherty, S. C., & Sadler, L. S. (2011). A review of attachment theory in the context of adolescent parenting. *Journal of pediatric health care : official publication of National Association of Pediatric Nurse Associates & Practitioners*, 25(2), 114–121.

5. Granqvist, P., Sroufe, L. A., Dozier, M., Hesse, E., Steele, M., van Ijzendoorn, M., Solomon, J., Schuengel, C., Fearon, P., Bakermans-Kranenburg, M., Steele, H., Cassidy, J., Carlson, E., Madigan, S., Jacobvitz, D., Foster, S., Behrens, K., Rifkin-Graboi, A., Gribneau, N., Spangler, G., ... Duschinsky, R. (2017). Disorganized attachment in infancy: a review of the phenomenon and its implications for clinicians and policymakers. *Attachment & human development*, 19(6), 534–558.

6. Nelson, C. A., 3rd, Zeanah, C. H., & Fox, N. A. (2019). How Early Experience Shapes Human Development: The Case of Psychosocial Deprivation. *Neural plasticity*, 2019, 1676285. <https://doi.org/10.1155/2019/1676285>

7. Rholes, W. S., Kohn, J. L., Paetzold, R. L. (2016) Disorganised attachment mediates the link from externalizing behaviour in adult relationships, *Personality and Individual Differences*, 19(2), 146-156.

8. Shaver, P. Dimensions of adult attachment, affect regulation and romantic relationship functioning, *Academia*, 21(2), 267-283.

9. Tierney, S. & Fox, J. (2010) Living with the anorexic voice: a thematic analysis. *Psychology and Psychotherapy*, 83(3), 243-254.

HOW ART EXPERTS AND ART LAYMEN DIFFER IN THEIR MENTAL PROCESSING OF ART OBJECTS

1. Allesch, C. G. (2018). *Vorschule der Aesthetik – Erster Theil* [Preschool of Aesthetics - First part]. In Fechner: *Vorschule der Ästhetik* (pp. 53-324). Berlin, Heidelberg: Springer Berlin Heidelberg.

2. Baumgarten, A., & Mirbach, D. (2007). *Ästhetik* [Aesthetics]. Hamburg: F. Meiner.

3. Fechner, G. T. (1876). *Vorschule der Ästhetik* [Preschool of Aesthetics]. Nachdruck der 3. Aufl. 1925, Hildesheim: Olms.

4. Freud, S. (1914). *Der Moses des Michelangelo* [Moses of Michelangelo]. *Imago. Zeitschrift für Anwendung der Psychoanalyse auf die Geisteswissenschaften* III, 15-36.

5. Gartus, A., Völker, M., & Leder, H. (2020). What Experts Appreciate in Patterns: Art Expertise Modulates Preference for Asymmetric and Face-Like Patterns. *Symmetry*, 12, 707. doi:10.3390/sym12050707

6. Gibson, J. J. (1971). *The Information Available in Pictures*. *Leonardo*, 4(1), 27-35. doi:10.2307/1572228 Kebeck, G., & Schroll, H. (2011). *Experimentelle Ästhetik* [Experimental aesthetics]. Wien: WUV.

7. Kirk, U., Harvey, A., & Montague, P. (2011). Domain expertise insulates against judgment bias by monetary favors through a modulation of ventromedial prefrontal cortex. *Proceedings of the National Academy of Sciences*, 108(25), 10332. doi:10.1073/pnas.1019332108

8. Leder, H. (2013). Acknowledging the diversity of aesthetic experiences: Effects of style, meaning, and context. *Behavioral and Brain Sciences*, 36(2), 149-150. doi:10.1017/S0140525X12001690

9. Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgements. *British Journal of Psychology*, 95, 489-508.

10. Leder, H., Carbon, C. C., & Ripsas, A. L. (2006). Entitling art: Influence of title information on understanding and appreciation of paintings. *Acta Psychol (Amst)*, 121(2), 176-198. doi:10.1016/j.actpsy.2005.08.005

11. Leder, H., Gerger, G., Brieber, D., & Schwarz, N. (2014). What makes an art expert? Emotion and evaluation in art appreciation. *Cogn Emot*, 28(6), 1137-1147. doi:10.1080/02699931.2013.870132

12. Leder, H., Ring, A., & Dressler, S. (2013). See me, feel me! Aesthetic evaluations of art portraits. *Psychology of Aesthetics, Creativity, and the Arts*, 7(4), 358-369. doi:10.1037/a0033311

13. Markovi, S. (2012). Components of Aesthetic Experience: Aesthetic Fascination, Aesthetic Appraisal, and Aesthetic Emotion. *i-Perception*, 3(1), 1-17. doi:10.1068/i0450aap

14. Pazzaglia, M., Galli, G., Leemhuis, E., Giannini, A., Pascucci, T., & Billi, E. (2020). Loss and beauty: how experts and novices judge paintings with lacunae. *Psychological research*. doi:10.1007/s00426-020-01370-9

15. Pihko, E., Virtanen, A., Saarinen, V.-M., Pannasch, S., Hirvenkari, L., Tossavainen, T., . . . Hari, R. (2011). Experiencing Art: The Influence of Expertise and Painting Abstraction Level. *Frontiers in Human Neuroscience*, 5(94). doi:10.3389/fnhum.2011.00094

16. Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: is beauty in the perceiver's processing experience? *Pers Soc Psychol Rev*, 8(4), 364- 382. doi:10.1207/s15327957pspr0804_3

17. Smith, E., & DeCoster, J. (2000). Dual-Process Models in Social and Cognitive Psychology: Conceptual Integration and Links to Underlying Memory Systems. *Personality and Social Psychology Review*, 4(2), 108-131. doi:10.1207/S15327957PSPR0402_01

18. Specker, E., Forster, M., Brinkmann, H., Boddy, J., Immelmann, B., Goller, J., . . . Leder, H. (2020). Warm, lively, rough? Assessing agreement on aesthetic effects of artworks. *PLOS ONE*, 15(5), e0232083. doi:10.1371/journal.pone.0232083

19. Strack, F., & Deutsch, R. (2004). Reflective and Impulsive Determinants of Social Behavior. *Personality and social psychology review: an official journal of the Society for Personality and Social Psychology, Inc*, 8, 220-247.

20. Schulz, K., & Hayn-Leichsenring, G. (2017). Face Attractiveness versus Artistic Beauty in Art Portraits: A Behavioral Study. *Frontiers in Psychology*, 8(2254). doi:10.3389/fpsyg.2017.02254

NEUROTHEOLOGY: FINDING RELIGIOSITY IN THE BRAIN

1. Clark, K.J. (2019). *God and the Brain: The Rationality of Belief*, 97. William B. Eerdmans Publishing Company.

2. Freud, S. (1927). *The Future of an Illusion*. London: Hogarth Press

3. Gould, S. J. (1997). *Nonoverlapping Magisteria*. The Unofficial Stephen Jay Gould Archive. Retrieved 11 November 2021, from <http://www.blc.arizona.edu/courses/schaffer/449/Gould%20Nonoverlapping%20Magisteria.htm>

4. Hamer, D. H. (2005). *The God Gene: How faith is hardwired into our genes*. Anchor Books.

5. Hamer, D. H., Hu, S., Magnuson, V. L., Hu, N., & Pattatucci, A. M. (1993). A linkage between DNA markers on the X chromosome and male sexual orientation. *Science (New York, N.Y.)*, 261(5119), 321–327. <https://doi.org/10.1126/science.8332896>

6. Hume, D. (1739). *A Treatise of Human Nature* book III, part I, section I, Oxford: Clarendon Press.

7. James, W. (1902). *The varieties of religious experience: A study in human nature*. London: Longmans, Green & Company

8. Maslow, A. (1943). *A theory of human motivation*. Wilder Publications, Inc.

9. Persinger, M. (1983). Religious and Mystical Experiences as Artifacts of Temporal Lobe Function: A General Hypothesis. *Perceptual And Motor Skills*, 57(3 Pt 2), 1255-1262. <https://doi.org/10.2466/pms.1983.57.3f.1255>

10. Persinger vs Dawkins: The God Helmet. (2005). Vimeo. Retrieved 11 November 2021, from <https://vimeo.com/54557808>.

11. Richard Dawkins vs John Lennox | The God Delusion Debate. (2017). Youtube.com. Retrieved 11 November 2021, from <https://www.youtube.com/watch?v=zF5bPI92-5o>.

12. Straiton, J. (2020). Epilepsy over the years: From the sacred disease to novel gene therapies. BioTechniques. Retrieved 11 November, 2021, from <https://www.biotechniques.com/neuroscience/epilepsy-over-the-years-from-the-sacred-disease-to-novel-gene-therapies/>

DOES FREUD'S THEORY ON PSYCHOANALYSIS SEE WOMEN AS LESS MORAL THAN MEN?

1. Cherry, K. (2022). Sigmund Freud's Psychoanalytic Theories of Women. Verywell Mind. Retrieved 20 January 2022, from <https://www.verywellmind.com/how-sigmund-freud-viewed-women-2795859>.

2. Holt, R. (1980). Freud's Impact on Modern Morality. *The Hastings Center Report*, 10(2), 38. <https://doi.org/10.2307/3561279>

3. Schafer, R. (2019). Problems in Freud's Psychology of Women. *Journal Of The American Psychoanalytic Association*, 67(3), 503-526. <https://doi.org/10.1177/0003065119858947>