HG Library: Cannabis induced caetextia, explaining the paradoxical effects of cannabis

We are delighted to mark the launch of our new HG Library with the release of this fascinating article, originally published in Vol 18, No 4 of the Human Givens Journal and the first of many in the new HG Library series.

The paradox that cannabis can both exacerbate and alleviate mental health problems such as depression, schizophrenia, paranoia and anxiety whilst giving rise to imagination and creativity has never been resolved. However, a new theory which places the human givens model for psychosis in a wider context could offer an explanation for the conflicting effects.

Cannabis-induced caetextia: exploring whether the organising idea of caetextia can help resolve confusion about the effects of cannabis misuse and point towards better treatments.

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When I was working as a substance misuse worker with 15–18-year-old males in a young offenders institute, cannabis use was a daily topic of conversation among them, as they yearningly recalled the last time that they had smoked or how much they looked forward to smoking it again on their release.

Intervention work with people who are at the ‘pre-contemplative stage’ in their thinking about their substance use (ie they don’t even consider it a problem) tends to focus on raising awareness of the associated health (mental and physical) and legal risks. But the young men we were working with were at an age when the effects on physical health (such as heart and lung diseases and cancers, arising from smoking tobacco with cannabis) were not yet apparent; they were also heavily involved in subcultures where illegal behaviour might be perceived as a badge of honour or indicative of status, so neither of these areas of risk held much significance for them. Indeed, researchers have identified how using illicit drugs, and the culture that surrounds their use, can meet emotional needs – as we might well expect, taking a human givens perspective.

When it comes to discussing the risks to mental health, there is even less to work with and workers are often reduced to falling back on citing statistical evidence for harm – for instance that users of the skunk form of cannabis are x times more likely to develop psychosis or are at x times greater risk of developing memory loss, etc. Human givens practitioners will know how empowering explanatory models for addiction and depression can be when they accord with a client’s model of reality but, to date, there is no such equivalent for explaining what is currently just a statistical link between cannabis use and mental health issues. Without a coherent explanation, statistical evidence is often met with cynicism: “doesn’t that only...”
There are a number of parallels between cannabis-induced behaviour and right-brained imagination, which is left to “run free, making directionless, random associations.”

Some advocates for the legalisation of cannabis echo these claims, arguing that the mental health problems associated with cannabis arise only because of social stigma and persecution. Government changes made in recent years to the legal classification of cannabis have not brought clarity to the debate around possible links between cannabis use and mental ill health, and the increase in the potency of cannabis over recent years means that different generations of users do not share the same experiences of cannabis use. Media attention has predictably focused on headline-grabbing stories about the ill effects of cannabis and so has not aided public understanding in a balanced way. Even among professionals who subscribe to the view that cannabis use increases the risk to mental health, there is still a lack of agreement on a number of issues. For instance, does a discrete ‘cannabis psychosis’ exist? Can cannabis use actually cause schizophrenia? Does it contribute to the exacerbation of existing mental health problems? And, conversely, can cannabis really be used, as some pharmacologists are seeking to demonstrate, to alleviate the symptoms of mental health issues?

Despite the need for some clear answers, very many researchers seem still to be focused on gathering statistical data and only some researchers acknowledge the need to develop explanatory models and identify ‘mechanisms’ which might, in turn, lead to novel strategies for the treatment of psychoses attributed to cannabis use. Clearly, to use human givens terminology, a larger organising idea is needed, which would be able to explain the apparent contradiction of statistical evidence showing cannabis use increases the risk of mental health problems and reports of cannabis alleviating the symptoms of mental health problems. It should also be able to explain the diverse range of reported effects of cannabis use, including changes in mood and thinking style, increased creativity, relaxation and relief from the symptoms of mental distress and increased risk of developing depression and schizophrenia.

The pioneers of the human givens approach have already introduced a model which offers a highly plausible explanation for psychosis, and contends that waking reality is processed through the REM state, a state of consciousness with dreamlike qualities, the most prominent form of which is the dream state itself; unmet needs put so much strain on the REM state mechanism for discharging unexpressed emotional arousals through dreaming that it breaks into waking consciousness. Anybody who is familiar with the reported effects of cannabis use and the phenomena associated with the REM state will have noticed the correlation between the two, but just noting the similarities is not an explanation in itself. For a long time, whilst puzzling over the connection between the REM state and cannabis use, I assumed that cannabis must provide users with a short cut for accessing the REM state. Paradoxically, using cannabis suppresses REM sleep – which may be one reason why the development of cannabis as an antidepressant is being pursued, as sufferers from depression experience increased access to the imagination.

I am going to suggest that an organising idea which places the human givens explanatory model for psychosis in a wider context can reconcile the apparent contradictions between the findings of researchers and the reports of users. Its central plank is caetextia, the term devised by Joe Griffin and Ivan Tyrrell to express an inability to appreciate context, which compels sufferers to fall back on one of two modes of thinking, designated left and right-brained caetextia.

**Left- and right-brained caetextia**

In caetextia sufferers who are left-brain dominant, caetextia manifests as a dependence on logical, straight-line thinking, better than average powers of concentration on external tasks, difficulties with communication and a reduced capacity to take into consideration the feelings of others – typical characteristics of Asperger’s syndrome. In those who are right-brain dominant, caetextia is expressed through “thinking by associations and a strong undisciplined imagination” which is left to “run free, making directionless, random associations.”

There are a number of parallels between cannabis-induced behaviour and right-brained caetextia:

- **associative thinking style**
- **lack of reasoning capacity**
- **increased access to the imagination**
- **loss of motivation (increasing the likelihood of needs not being met)**

The episode

Cannabis really be used, as some pharmacologists are seeking to demonstrate, to contribute to the exacerbation of existing mental health problems? And, conversely, can ‘cannabis psychosis’ exist? Can cannabis use actually cause schizophrenia? Does it contribute to the exacerbation of existing mental health problems?
and cannabinol (the latter being the weaker of the two) and how they bind – or find their agreement about the action of the psychoactive components delta-9 tetrahydrocannabinol and cannabinoi (the latter being the weaker of the two) and how they bind – or find their agreement about the action of the psychoactive components delta-9 tetrahydrocannabinol and cannabinoi.

If cannabis has the potential, at least temporarily, to induce right-brained caetextia, then can we dream book 6 human givens college 7 human givens diary 4 human givens in the media 7 human givens journal 5 human givens netherlands 6 human givens online training 1 human givens peer groups 1 human givens therapy 17 human givens therapy 1 hypnosis 7 IAPT 1 imagination 5 in8 1 in8 cards 1 indoctrination 1 ivan tyrrell 4 james le fanu interview 1 jargon 1 joe griffin 4 john bell 1 journalism 1 jung 1 language 2 learning 5 mass media 1 meaning 8 medication 1 memory 1 mental health 6 mental health awareness week 15 5 memory 1 music in hospitals 1 mysticism 5 nick davies interview 1 nominalisations 2 sad 1 pain 2 pattern matching 1 people’s book prize 1 politics 1 post traumatic stress disorder 5 postnatal depression 1 Prof A.V. Ashok 1 prof michael fitzgerald interview 1 psychosex 6 ptsd 7 related organisations 2 relaxation 1 REM sleep 7 REM state 19 research 2 resolution 1 resources 2 reward technique 4 RevSiK 1 schizophrenia 8 science 1 self help tips 12 shell shock 1 sleep 6 spirituality 1 stop worrying 8 stress 5 students 1 terminology 1 the middle east conflict 1 the therapist’s voice 1 thoughts 1 training 5 trance 1 trauma 8 twitter 1 video 2 webinar 2 wellbeing 7 why we dream book 7 working with children and young people 1

Evidence from neurobiology

If cannabis has the potential, at least temporarily, to induce right-brained caetextia, then can findings from neurobiological research enable us to identify the underlying mechanisms? Researchers have identified at least 60 active ingredients present in cannabis and research still needs to be conducted into how those ingredients act upon the user. There is, however, agreement about the action of the psychoactive components delta-9 tetrahydrocannabinol and cannabinoi (the latter being the weaker of the two) and how they bind – or find their agreement about the action of the psychoactive components delta-9 tetrahydrocannabinol and cannabinoi.
match – to cannabinoid receptors, which form part of the body’s relatively recently identified endogenous (innate) cannabinoid system. (Research is still in early stages but it appears possible that this system is involved in diverse functions of the body, including immunological, gastrointestinal, reproductive and cardiovascular, as well as the nervous system.) The cannabinoid receptors located in the brain are called CB1 receptors and have a role in mediating the production and transmission of messages sent by neurotransmitters. However, rather than having an excitatory effect, the active ingredients in cannabis have an inhibitory effect. In other words, taking cannabis prevents activity along neural pathways where CB1 receptors are present at the synapses that connect neurons to one another.

There are several neurotransmitters which are inhibited. These include glutamate, the brain’s major excitatory neurotransmitter, vital for forging links between neurons concerned with learning and long-term memory; γ-aminobutyric acid (GABA), which regulates the responses of cannabinoid receptors; noradrenaline, which triggers physical and mental arousal and heightens mood; acetylcholine, which controls activity connected with attention, learning and memory; and dopamine, which drives motivation – human givens practitioners will be familiar with dopamine’s role in emotional hijacking and addiction – although it has also been suggested that delta-9 tetrahydrocannabinol may increase dopamine levels.

We have seen that there is an overlap between the thinking styles and behaviours associated with a right-brained caetextic state and the effects of cannabis use. And we know that cannabis use inhibits brain activity in parts of the brain where CB1 receptors are located. We should therefore expect CB1 receptors to be most prevalent in areas of the brain associated with logical, linear, left-brained cognition and an external focus of attention, and this is indeed the case: high densities of CB1 receptors are found in the forebrain in general, and in the prefrontal cortex which, as mentioned before, is concerned with focusing on external reality, concentration on tasks and logical thinking.

Inhibition of these areas of the brain would surely lead to a greater reliance on the capacities associated with the right hemisphere: creativity, imagination and associative thinking.

Attention, memory and fear

CB1 receptors are also densely located along the pathways which run between the brain structures that are critical for processing emotion (the amygdala and the medial frontal cortex). There are CB1 receptors located in the anterior cingulate cortex, as we might expect, given the effects of cannabis on attention capacity, and also in the limbic system, where there are high densities in the hypothalamus, the hippocampus, responsible for short-term memory, and the amygdala. In other words, the activity of those parts of the brain that are involved in ‘emotional hijacking’, and which are vulnerable to the kinds of harmful conditioning that accompany traumatic experience, are inhibited by cannabis use.

Suppression of activity in the hippocampus as a result of cannabis ingestion would explain the short-term memory loss reported by cannabis users and demonstrated by researchers. Taking cannabis would also have the effect of relieving users temporarily from the symptoms of post-traumatic stress, as the activity of the amygdala, involved in fear responses, and the hippocampus, involved in emotional memory formation, would both be inhibited, along with the transmission of glutamate and GABA, which have an important role in learning and the process of conditioning fear.

With an understanding of how the amygdala, when sufficiently emotionally aroused, can send us into survival ‘fight or flight’ mode, which distorts our thinking, it is easy to see why using cannabis, which suppresses areas of the brain that process emotion and emotionally charged memories, would temporarily lower emotional arousal and provide relief to those suffering from depression, anxiety and the symptoms of trauma, as has been claimed. The temporary release from external problems and an easy retreat into the imagination may provide some relief for cannabis users, the nature of whose lives may not be enabling them to get their needs met in healthier ways. However, accessing the creativity of the REM state without the balance provided by contextual thinking also increases the potential for the misuse of imagination.

If cannabis does inhibit dopamine production and high dopamine levels are associated with psychosis (antipsychotic medication reduces dopamine levels), it would seem more likely that using cannabis would be protective against psychosis rather than a risk factor. However, it makes sense that, as cannabis wears off, there would be a dopamine rebound, and that paranoid and psychotic symptoms would be exacerbated at that time by chaotic imaginings recently experienced while under the influence of the drug.

Another possibility is that cannabidiol – a component in cannabis which is held to counteract the effects of delta-9 tetrahydrocannabinol, including the psychotic symptoms associated with its use – may bind more effectively to receptors in the limbic system, which would explain its antipsychotic qualities, while delta-9 tetrahydrocannabinol may bind more effectively with receptors in the prefrontal cortex, thereby having a stronger inhibitory effect on the left hemisphere capacities that would normally prevent an individual slipping into a dissociated state.
Why adolescents are so vulnerable

Statistically, adolescents and young adults who use cannabis are more likely to develop psychotic symptoms and psychosis than those who started using cannabis in adulthood or those who don’t use cannabis at all; this may be connected with brain maturation and the coinciding with the peak period for the onset of psychosis. Sarah Jayne-Blakemore, a neuroscientist at the forefront of studies into adolescent brain development, has speculated that there may be a relationship between adolescent cannabis use, the pruning back of neural pathways in the neocortex (which starts happening around the onset of puberty and slows capacity to focus on and carry out cognitive tasks) and the increased risk of developing schizophrenia at a later stage.

Perhaps the relaxing effects of cannabis and the short-cut retreat it facilitates into the imagination would make it attractive to young people experiencing the emotional turmoil of adolescence. Learning how to regulate emotion and the development of self-awareness require the forming of new connections between synapses in the brain but, as we have seen, the activity of neurotransmitters involved in this process is inhibited by cannabis use. In this case, so-called Hebbian learning, the wiring together of cells that fire together, doesn’t take place. The resulting arrested development of those areas of the left hemisphere which provide a balance for the right hemisphere makes the user more prone to psychotic thinking.

Addictions arise initially from unmet needs and fade away when needs are met. But that is not the case if cannabis use, by impairing the left hemisphere’s capacity to focus outside of ourselves and to regulate emotions, hijacks the internal guidance system we depend upon to secure our needs. Those who work with people suffering addictions have noticed that drug users are often lacking in maturity – childlike or adolescent behaviours do not seem to have been superseded by adult patterns of behaviour. It makes sense that adolescent cannabis users emerging into their 20s without having fully developed the cognitive skills of their non-using peers would be left at an earlier stage in their development, less able to regulate and manage their emotions, less resilient to stress and therefore more vulnerable to mental health problems.

Strange dreams

Because cannabis inhibits dopamine production and transmission it should come as no surprise that it suppresses expectation (motivation). A widely reported cannabis withdrawal symptom is the occurrence of strange dreams. An explanation could be that, with cannabis no longer inhibiting dopamine production and transmission, overemotional arousal may occur, as the prefrontal cortex, which has the role of regulating and inhibiting inappropriate emotional responses, may, as we have seen, be impaired, ‘out of practice’ or not fully developed in the former cannabis user. Unexpressed emotional arousal will need to be discharged through dream sleep, in the normal way, using metaphorical representations, which, in the circumstances, might be extra vivid or lurid.

It has been suggested by some researchers that larger than usual amounts of dopamine production in schizophrenia sufferers, attributed to malfunctions in dopamine production, pathways and/or receptors, might be the cause of psychosis, rather than a symptom. The ability of the active ingredients in cannabis to inhibit the production and transmission of dopamine has attracted interest in its potential use as a medication for people who have been diagnosed with psychotic illnesses. Given the lack of explanatory models for the wideranging effects of cannabis use, this should, surely, give cause for concern. With an understanding of the inhibitory effects of cannabis use, we can predict some of the less desirable results of using cannabis as a medication. While it would provide relief from stress, anxiety and the symptoms of post-traumatic stress, it would also, depending on developmental maturation, inhibit the further development of the ability to regulate emotion. This might result in mood swings, paranoia and vulnerability to depression and psychotic symptoms. Either as a prescribed antipsychotic or as illicit self-medication, we would also expect users to exhibit some of the ‘zombie’ side effects associated with both existing antipsychotics and cannabis use. As previous research has shown, it may be that users would resort to illicit stimulants to counter the inhibiting effects of cannabis-based antipsychotics.

How practitioners could put this understanding to a practical use

I would like to suggest that an understanding of how cannabis inhibits the processing of emotion and induces a right-brained caetextic state could be enormously helpful in developing effective therapeutic approaches for supporting people who have decided that they want to abstain from cannabis use, and also those still at a pre-contemplative stage in their thinking. These are my ideas for what substance misuse workers might choose to do, in
In the light of this understanding, to work more effectively with cannabis users:

- Recognise and accept that using cannabis can help people to relax and provide relief from stress and difficult feelings. Explaining why cannabis has this effect will help to build rapport, give the practitioner credibility and give the user a better understanding of why they may be drawn to use cannabis.

- Recognise and accept that using cannabis helps people to access their imaginations and be able to explain how this works, and how it can sometimes give rise to unusual thoughts and, in some cases, paranoia.

- Be able to explain why sometimes creative ideas which occur when people are ‘stoned’ may seem to be better than they are.

- Enable understanding that we all have two innate thinking styles, logical thinking and associative thinking, and how we need both, to balance and complement one other.

- Enable understanding that overreliance on associative thinking can lead us to make connections between events, feelings and thoughts that may be inaccurate. Without access to logic to ‘check things out’, we are less able to recognise when our thoughts are paranoid or when we are ‘blowing things out of proportion’

- Be able to alert people to what to expect when they stop using cannabis: the return of strong emotions and dreams that seem unusual; be able to explain why this happens and help people anticipate such sudden changes, which provide additional challenges during abstinence.

- Be able to teach people the skills they will need to manage their lives without cannabis, such as the ability to relax, to develop and/or use thinking skills to check out feelings, to reframe thoughts instead of, say, jumping to conclusions, and to access the imagination naturally – all within the human givens practitioner’s toolbox of techniques.

- Be aware that people may have been using cannabis to self-medicate against the distressing symptoms of stress, anxiety, depression and post-traumatic stress and be able to treat (or at least refer to somebody that can treat) these symptoms of stress, anxiety, depression and post-traumatic stress and be able to treat (or at least refer to somebody that can treat) these conditions.

The explanatory model I am presenting here for what I am calling cannabis-induced caetextia does not suggest that cannabis use is a direct cause of mental health problems: what it attempts to do is explain how cannabis use can condition our innate guidance system in such a way as to make us more vulnerable to developing mental health problems, particularly if cannabis is used during adolescence. At the same time, it explains why some users report that cannabis can help to alleviate the symptoms of mental distress. It also accounts for the other reported effects of use, including changes in mood, thinking style and, in particular, increased creativity – a human given which is associated with a vulnerability to mental health problems. It can thus successfully explain the apparent contradictions surrounding the use of cannabis.

I hope that the core idea, as it is presented here, together with the suggested therapeutic applications, may point towards a better understanding of how to educate people about the risks associated with cannabis use and how to equip them with the skills needed to secure better mental health. If the idea finds resonance and helps to advance thinking, then it also highlights the power of the human givens perspective to bring clarity to a field of study that has become clouded and confused. We might wonder what other problems might be seen afresh, if looked at through the lens of new organising ideas.

**How cannabis might affect different people differently**

I would like to make a few speculations about how cannabis use might affect people according to their individual make-up. Amongst people who already have a genetic disposition towards right-brained caetextia, the effects of cannabis on thinking and behaviour may be less noticeable. One cannabis user I knew met all the criteria for right-brained caetextia yet seemed almost unaffected by her daily use of very potent ‘skunk’ cannabis.

High-functioning, left-brained caetextia sufferers or those who display classic Asperger’s traits, however, might require stronger doses just to suppress their already strong left-brain capacities. But, given that they may have poor right-brained capacity or difficulty accessing the REM state, it is possible that, for first-time users, whose need for control is usually met through routine and familiarity, the experience of unusual, out-of-control feelings or thoughts might trigger anxiety or panic attacks. Also, the inhibition of their natural left-hemisphere strengths might leave them in a kind of distressing no-man’s land: with limited access to
either left- or right-hemisphere capacities, continuing to develop a coherent sense of self could become increasingly difficult. They might, however, find that the inhibitory effect of cannabis on emotional activity in the brain helps them to manage the stress which arises from their already reduced access to contextual thinking; this may increase the likelihood of dependency.

Those who are not caetextic but strongly righthemisphere dominant – young people who have some access to logic and reason but are also highly creative and imaginative – might be the most vulnerable to experiencing a loss of a sense of self. Sufficiently strong doses of cannabis might imbalance their already well-developed right hemisphere abilities to such a degree that they begin to exhibit psychotic symptoms, experience significant distress and, in rare cases, become totally dissociated. It is also possible that users who pattern match to previous experiences of psychotic symptoms – whether as a result of cannabis use or not – may be vulnerable to reexperiencing trauma even after limited exposure to the effects of cannabis.

REFERENCES


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