



INSIGHTS

Toward the “helioscope” hypothesis of psychedelic therapy



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Stanislav Grof, the psychiatrist who pioneered psychedelics-assisted psychotherapy (PAP), considered psychedelics' unpleasant acute effects part of the therapeutic process. He wrote: “Sedatives can do much harm in the course of psychedelic sessions. Even the most dramatic negative LSD experiences have a strong tendency toward positive resolution, and if resolved well, they are exceedingly healing for the client in the long run” (Grof, 2008).

The idea of unpleasant but beneficial treatment effects is well known in the history of psychotherapy. Freud framed unpleasant sensations during psychoanalysis as catharsis, which he conceived as an essential therapeutic step for consciously accepting and integrating traumatic experiences. Modern exposure therapies consider experiencing strong negative emotions, such as anxiety, a central element of the therapeutic process. As a result, in psychotherapies, including PAP, temporary symptom amplification has been widely accepted.

Are side effects and symptom amplifications always therapeutic in nature? Recent studies that systematically record side effects in psychotherapies show worrying results (Britton et al., 2021). One study found that 40% of people with mild mental disorders who underwent an eight-week meditation stress reduction program experienced negative symptoms from the therapy that negatively affected their lives. About a quarter of these symptoms were persistent. Most often, these were symptoms of re-traumatization, meaning that a traumatic experience became conscious but could not be properly processed through the meditation technique.

This danger also affects standard conversational psychotherapies, which always contain an aspect of confrontation. New studies show that even simple talk psychotherapy could be more problematic than previously assumed. For example, a study by Harvard University shows that simply naming a negative experience does not, on average, lead to acceptance, reframing or forgetting, but on the contrary psychologically “crystallises” it and thus makes it more resistant to change (Nook et al., 2021). These findings are in line with studies on debriefing interventions after natural disasters and accidents, which may increase the risk of post-traumatic stress symptoms (Mayou et al., 2000).

In my view, one of the most astonishing and important findings in psychotherapy research in the last decades is that psychedelics used in the treatments for posttraumatic stress disorder (PTSD) and depression are well tolerated. In the clinical trial of MDMA-assisted therapy for severe PTSD, Mitchell et al. (2021) found almost no psychological adverse events. Although about a third of the sample reported suicidal thoughts at baseline, these were never exacerbated in the MDMA arm, and serious suicidal ideation occurred almost entirely in the placebo arm. In depression, psilocybin treatment with or without psychotherapy has been proven to cause fewer side effects than the standard treatment with an SSRI, although psilocybin more often provokes confrontation with traumatic memories than classical antidepressants (Carhart-Harris et al., 2021).

Mithoefer's MDMA treatment manual for PTSD says: “One of the qualities of MDMA is that it makes it easier to face memories and not be overwhelmed and actually work through them and the painful emotions in a way that is heal-

ing rather than re-traumatizing. In everyday life, flashbacks and memories can come up spontaneously and overwhelm you. We are trying to change this by inviting whatever comes up to come up in a safe setting, with the medicine helping you approach it without being overwhelmed. The idea is to approach your memories with less fear and less defensiveness.”

Neurobiologically, this means that the influential thalamic gating model that linked psychedelics to psychosis is incomplete (Geyer and Vollenweider, 2008). The opening of the thalamic doors of perception would lead to a severe sensory overload. In fatal familial insomnia, a very rare brain disease, the filter in the thalamus is severely disturbed. Those affected are so massively flooded by direct experiences, visions and inner images that they can no longer sleep. In contrast, in the Mitchell study, only 6.5% of patients reported nervousness as an MDMA adverse effect. In Carhart-Harris’ depression trial, 14% of patients reported anxiety as an adverse event in the SSRI arm, whereas no patient in the psilocybin arm reported anxiety as an adverse event (Carhart-Harris et al., 2021).

There is increasing clinical evidence that psychedelics offer not only an opening of perception but can also provide protection, possibly associated with serotonin 5-HT_{2A} receptor activity (Madsen et al., 2020). The perceptual filter, which is our brain to a large extent, is thus not simply removed, but replaced. The psychedelic filter, however, seems to be more permeable and less rigorous in filtering out what does not serve short-term self-interest. Psychedelics seem to act more like a helioscope. The helioscope is an astronomical telescope used in directly observing the sun and sunspots. It has a polarizing filter to attenuate light like sunglasses do. This not only makes looking at the sun harmless, but also intensifies colors and contours and prevents disturbing reflections. Transferred to psychedelics, this means that one has the possibility to see something through a different filter that could not be looked at under normal circumstances.

In addition to the polarization filter, there is another important protective factor. In contrast to behavioral exposure therapy, patients in PAP do not consciously choose the stimuli, memory cues and objects that trigger the pathological reaction are not consciously chosen and predetermined in PAP. Rather, it is an unconscious interaction between the psychedelic and the patient’s unconscious that guides the processing of traumatic memories. The Rigveda, the oldest part of the Indian Veda, including extensive information on the effects of the psychedelic substance Soma, says that Soma seeks suns and allows to look into suns. This seems to me a good metaphor for PAP for PTSD, where the psychedelic helps the patient to choose and to process traumatic memories.

In my experience as a PAP therapist, MDMA gives the greatest protection against re-traumatization, which is why it is the drug of choice in the treatment of post-traumatic stress disorder. This is consistent with a recent linguistic analysis of trip reports (Hase et al., 2022). The disadvantage of MDMA is that it can give an overly rosy light. LSD probably allows the deepest, most direct looks, but this can also lead

to violent and unpredictable reactions up to paranoid fears, because the look is occasionally hard and unyieldingly clear.

In summary, we may need new images and terminology to accurately describe psychedelics’ therapeutic effects for clinical practice. The helioscope metaphor may contribute to this. In addition, it may encourage research into a psychedelic-specific effects that are crucial for safety and efficacy of treatments with psychedelic substances.

Conflict of Interest

The author declares that he has no conflicts of interest.

Author disclosure

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