

The Exploration of Naturalistically used Ayahuasca and 5-MeO-DMT

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Valorisation addendum

This section addresses the impact and relevance of the studies described in this dissertation. Outlined are the way these studies are relevant to society, which target group can benefit, and how research findings have been disseminated.

Societal relevance

I would like to start this section by reconnecting with the background-section in **Chapter 1** of this dissertation. Here, the prevalence of mental health related disorders was highlighted, and the implications it can have on the individual and society if left untreated. Moreover, it was highlighted that both conventional first-line treatments in Western societies for individuals affected by mood-related disorders (i.e CBT and SSRIs), appears to be less able to effectively resolve the disorder (Kuyken et al., 2005; Peter A Levine & Frederick, 1997; Moncrieff, 2007; Turner & Rosenthal, 2008). This implies that attempts to find a treatment to achieve full remission of mood-related disorders remains largely unsuccessful (Hengartner, 2017; Hengartner et al., 2018; Moncrieff, 2007). Nevertheless, as the current dissertation demonstrates, psychedelic substances like ayahuasca and 5-MeO-DMT used in a naturalistic setting is associated with a decrease in symptoms of affect, an increase in mindfulness-related capacities, creativity, empathy and well-being, moderated by the ratings of the psychedelic experience. The evidence of persisting positive effects on mood, wellbeing and cognition, following ayahuasca and 5-MeO-DMT ceremonies are crucial because impaired mood, deficits in mindfulness, as well as creative, flexible thinking, are hallmark symptoms in mood-related disorders such as depression, anxiety, and post-

traumatic stress disorder (PTSD) (Samuel R Chamberlain, Naomi A Fineberg, Andrew D Blackwell, Trevor W Robbins, & Barbara J Sahakian, 2006; A. M. Cusi, G. M. MacQueen, R. N. Spreng, & M. C. McKinnon, 2011; U.-S. Donges et al., 2005; Lee & Orsillo, 2014; Morrison et al., 2016; Gabriela Nietlisbach, Maercker, Rösler, & Haker, 2010; Palm & Follette, 2011; Melissa Parlar et al., 2014).

Moreover, findings reveal that the long-term improvements of mindfulness-related capacities are not only limited to mindfulness-related practices such as meditation and yoga. Interestingly, increased mindfulness-related capacities could be beneficial in a therapeutic setting as it could prevent relapse in mood-related disorders (Breslin et al., 2002). Mindfulness has also shown to be a useful tool to develop emotion regulation skills (Linehan, 1993), and can facilitate acceptance and change processes (Hayes & Wilson, 2003; Strosahl & Wilson, 1999). Additionally, mindfulness is important for skill training in affective and interpersonal regulation prior to exposure (Cloitre et al., 2002). In sum, the use of mindfulness as an intervention for both post-traumatic stress disorder (PTSD), and addiction could theoretically break the behavioral loop in those individuals with a history of trauma and/or addiction (Cloitre et al., 2002).

Additionally, previous research demonstrates that a reduction in creative and empathic skills in populations where social interactions and subjective well-being are compromised. (A. T. Beck, 1967; Neumann et al., 2011). The enhancement of convergent thinking evoked post ayahuasca and 5-MeO-DMT use could reverse this and help to improve people's cognitive, emotional, and interpersonal capabilities. The enhancement of divergent

thinking is important in cognitive therapy as it can help strengthen psychological flexibility and adapt coping styles.

How would a treatment for mood-related disorders with psychedelics look like?

As per the introduction of this thesis (**Chapter 1**), although research points to both ketamine and psilocybin's efficacy in treatment of mental health related disorders, there appears to be more to treatment but a stand-alone pharmacological intervention (i.e alternative pharmacotherapy). Therefore, psychedelics such as ayahuasca and 5-MeO-DMT could potentially be used in a therapeutic setting as *catalysts* to bring about betterment in mood-related symptoms as part of Psychedelic-assisted Psychotherapy (PAP) (Schenberg, 2018). However, as we see per findings in **Chapter 3**, there are several non-pharmacological factors to account for with ayahuasca, and that its effect on the mental health related variables seem to be a result of the synergy between pharmacology and the context rather than pharmacology alone. This may make it problematic to use ayahuasca in a PAP-setting, unless the context is specifically altered to include the various other factors that makes up the context of an "ayahuasca-setting". However, as there are many ayahuasca ceremonies worldwide, and therefore many different contexts, there is exist not only one ayahuasca-setting but many. 5-MeO-DMT on the other hand is not tied up to any specific lineage or traditions. Consequently it may be easier to implement 5-MeO-DMT into a PAP setting similar to that outlined in the protocol for MDMA for PTSD (Mithoefer, Designee, Doblin, & Emerson, 2008). Nevertheless, specific adjustments is advised to be made, and one can presume that those would largely depend on future assessments of 5-MeO-DMT and the settings it shows to be effective in. It also appears that

regulations with regard to settings it is taken in is highly warranted due to the number of adverse effects associated with underground ceremonial settings ("5-MeO-DMT malpractice; Open Letter Concerning Abuses by Octavio Rettig and Gerry Sandoval," 2019). Thus, it is highly advised that 5-MeO-DMT is used in a structured, such as for example a PAP-setting, where a therapist, or therapy team would meet with the patient prior to their trip to psychologically prepare them, monitors them throughout their trip, and then helps them process their experience afterwards (i.e., integration).

Finally, as former research suggests, there are more targets besides the brain to focus on to bring about betterment in mood-related disorders. Consequently, it is strongly suggested that a novel treatment for mood-related disorders should not be developed yet as another a treatment or pharmacological intervention solely targeting the mind. Instead, there are reasons to believe that a holistic approach will be favorable. In fact, previous research on immunology, diet and brain-derived neurotrophic factor, and their connection with mood-related disorders demonstrate that the development and persisting symptoms of mood disorders appears to not to be the result of one process, but of a **whole** process.

Target groups

The findings discussed in this dissertation are relevant to multiple target groups. Firstly, the current findings are relevant to patients with various mood-related disorders. Secondly, the current findings are relevant for therapists working in the area of mental health. Thirdly, researchers in the field of psychedelics can use the knowledge of the present studies to base the design of placebo-controlled research on ayahuasca and 5-MeO-DMT. Moreover, the information in this dissertation can better guide other

researchers on how to go about their future research on psychedelics. Fourthly, the results of the studies summarized in this dissertation can inform organizations in the planning of potential clinical trials of ayahuasca and/or 5-MeO-DMT. Finally, the current findings are also interesting to the general population and (potential) drug users who would like to be further informed about the psychedelic substances such as ayahuasca and 5-MeO-DMT.

Dissemination and impact

One of the goals of this thesis was to assess (persisting) effects of ayahuasca and 5-MeO-DMT in humans, and to further translate the findings into practical applications of the effects following ingestion. The author of this dissertation has taken various efforts to ensure that the knowledge gained from these studies are spread across different target groups. Moreover, the five studies summarized in this dissertation have been published in or submitted to several international peer-reviewed journal to share the findings with the international research community. Worthy of note is that the study described in **Chapter 4**, on the effect of toad secretion containing 5-MeO-DMT on mental health related variables, was downloaded **120 000 times** after its publication (information retrieved on the 14th of February 2020). In addition, most of the research findings have been presented at various international conferences;

- September/October 2017 - the International Transpersonal Conference, Prague, The Czech Republic; poster presentation; “*Acute and Long-term Effects of Ayahuasca on Affect and Cognitive Thinking style*”.

- June 2018 - Beyond Psychedelic Conference in Prague, The Czech Republic – oral presentation: “*In-vivo Effects of Toad Venom (5-MeO-DMT) on Affect and Thinking Style*”;
<https://slideslive.com/38908677/invivo-effects-of-toad-venom-5meodmt-on-affect-andthinking-style>
- August 2019 – Breaking Convention 2019, in London, UK – oral presentation: “*Prospective Examination of Synthetic 5-Methoxy-N,N-dimethyltryptamine Inhalation: Effects on Salivary IL-6, Cortisol levels, Affect and Non-judgement*“;
<https://www.youtube.com/watch?v=URSqxFOcaas&t=373s>
- September 2019 – Insight Conference 2019, in Berlin, Germany – oral presentation:
“*The comparison of effects and experiences following either vaporization or intramuscular injection of synthetic 5-methoxy-N,N-dimethyltryptamine in a naturalistic setting*“;
<https://www.youtube.com/watch?v=opsWlr0MIu8&feature=share>

The research findings of various studies have also been discussed in podcasts and webinars.

- March.2018 - Webinar for Emma Sofia about Ayahuasca and 5-MeO-DMT, Oslo, Norway;
https://www.youtube.com/watch?v=hTTurLoK_78
- March 2018 - Psychedelics Today, USA – Podcast “*Ayahuasca ceremonies and 5-MeO-DMT*“;
<http://www.psychedelictoday.com/2018/03/21/malin-vedoy-uthaug-exploring-ayahuascaceremonies-and-5-meo-dmt/>

The future goal is to continue dissemination of the research findings through (inter)national journal publications, (inter)national conference visits, websites, in addition to the communication of research findings by means of workshops and public debates, presentations and podcasts in order to provide a more interactive atmosphere, and to help keep the scientific community as well as the general public informed and up to date about the topic.

Finally, it is important to highlight that a collective multidisciplinary effort is necessary at a global level considering the many people that are suffering unnecessarily from mood-related disorders. A collaboration amongst scientists from different backgrounds and disciplines is highly warranted to determine further translational value of psychedelics, as well as ayahuasca and 5-MeO-DMT. Besides more science, a collective effort is warranted to bring about further education and information around the topic of psychedelics to the general public, and so too politicians to bring about destigmatization, as well as policy change allowing for betterment in opportunities for the use of psychedelics in treatment of mood-related disorders. A way to go about such behavioral change on a societal level can perhaps be further investigated using Intervention Mapping (Bartholomew, Parcel, & Kok, 1998; Kok, Schaalma, Ruiter, Van Empelen, & Brug, 2004).