Master’s thesis project plan

Tentative title:

The role of experience in ketamine therapy: Searching for EEG markers of ego dissolution in TR-D patients with ketamine infusion and investigating its links to treatment alleviation.

Description of research problem:

Depression is a severe mental disorder that affects around 5% of the adult world population (WHO, 2021). Approximately 30% of MDD patients do not experience any alleviation from either antidepressant therapy, talking therapy, or combinations (Zhdanava et al., Little, 2009). They are generally a high-maintenance clinical population, costing the US around $45 billion yearly (Mrazek et al., 2014). Therefore, finding new treatment options for this vulnerable group can be highly cost-efficient if the effects are lasting.

Ketamine has been shown to have fast-acting antidepressant effects when used in lower dosages, with a recent review finding ketamine to have a robust antidepressant effect 4 hours after administration (77%) and a medium effect 72 hours after treatment (43%) (Katalinic et al., 2013). In addition, as ketamine has been used extensively for clinical purposes, its safety is well documented (Hyde, 2015), making it a strong candidate for psychedelic therapy against depression.

There is a debate in the ketamine treatment field, regarding the importance of the experience and the treatment outcome (Source). Many pharmacological companies like EXAMPLES construct similarly structured compounds to patent that have *less* psychedelic out-of-body effects. They argue that this will make the substances more tolerable, but equally efficient. There are mixed findings on their efficacy and the role of experience in treatment outcomes is still up in the air.

In order to better understand the role of experience, our research team will collect EEG data of patients receiving ketamine infusion at Østfold Sykehus. We will also administrate questionnaires regarding their mood and expectations before their treatment, and questions about their psychedelic experience after the infusion. We will then use this data as predictors of treatment outcome e.g., 6 months later and consider the role of ego dissolution. This is a preliminary study that strive to establish the role of ego dissolution in ketamine treatment for TR-D patients, and thus, future studies could use control groups that receive S-ketamine, which has fewer “psychedelic effects”, and compare it to the efficiency of another group with racemic ketamine.