

Reward Processing in Behavioral Activation: Assessment and Treatment

Research Summary

Depression is one of the most common mental disorders worldwide and ranks among the leading causes of years lived with disability. Despite the effectiveness of psychotherapy, challenges remain regarding both its accessibility and its ability to address the full spectrum of depressive symptoms. Impaired reward processing is widely considered a central mechanism in the development of specific depressive symptoms, particularly anhedonia — the loss of pleasure in previously enjoyable activities. Anhedonia is associated with a more severe course of depression and often remains as a residual symptom after treatment. It further reduces life satisfaction, increases suicide risk, and creates significant barriers to recovery, as it complicates efforts to achieve remission and sustain long-term recovery. Traditional depression treatments, such as cognitive-behavioral therapy (CBT) and antidepressant medications, are generally less effective in addressing anhedonia than other symptoms of depression, indicating a need for new approaches specifically targeting reward processing. Behavioral Activation (BA) is a well-validated treatment that aims to improve reward processing, yet challenges persist as often positive affect is restored to a lesser extent than negative affect. The overarching aim of this dissertation was to investigate diagnostic methods and interventions that could potentially improve the effectiveness of BA in treating depression, specifically in relation to anhedonic symptoms.

The first study of this dissertation addressed the question whether incorporating BA group therapy prior to individual therapy in depressed patients reduces the overall therapy duration without compromising its effectiveness compared to therapy provided solely in individual sessions. Our findings demonstrate that patients who participated in BA group therapy required fewer treatment sessions and experienced significantly shorter waiting times for treatment than patients who received individual therapy only. The reduction in treatment sessions is particularly impressive given that the combination treatment was at least as effective as the pure individual therapy. Our findings are particularly relevant given the long waiting times for psychotherapy in Germany, as group therapy allows for the simultaneous treatment of multiple patients, offering a time- and cost-effective supplement—or even an alternative—to individual therapy.

The second part of this dissertation addressed the question of how we can assess information processing patterns that impact the ability to savor—an active emotional regulation strategy focused on attending to and appreciating positive experiences. With our study on the validation of the German Savoring Beliefs Inventory (SBI), we provide further empirical evidence in support of the reliability and validity of the SBI. We observed that a higher perceived savoring ability

can be a protective factor against depression and anhedonia. Furthermore, we highlight the clinical specificity and incremental validity of the SBI in enhancing the predictive accuracy for depression and anxiety beyond that of commonly used questionnaires like the BDI-II and BAI. The SBI has the potential to become a valuable tool for both research and practice, offering a supplementary assessment that focuses on emotional competencies rather than solely addressing deficits inherent in emotional disorders.

In response to the growing demand for interventions targeting anhedonia, our final study introduces the Training to Enhance Reward Experience (T-REx), a novel treatment approach combining reward experience training, savoring, and mental imagery. T-REx significantly reduced depressive symptoms and enhanced active behavior after just five days of intervention, achieving results comparable to those of an established and empirically supported intervention. Noteworthy, active behavior was effectively enhanced even though T-REx did not include activity planning. T-REx therefore has the potential to be combined with BA interventions in a clinically meaningful and prolific way, as it directly addresses aberrant reward processing. Nevertheless, it is worth mentioning that the outcomes in reducing anhedonia were less promising, underscoring the challenges in effectively targeting this particular symptom.

In summary, this dissertation investigated novel approaches to enhance the effective application of BA, a treatment method capable of overcoming barriers such as diminished anticipatory pleasure, reduced reward-related learning, and decreased effort valuation. We have obtained comprehensive results demonstrating that BA can be used prior to CBT to shorten treatment duration, thus improving access to treatment. The validated German version of the SBI can now be used in psychotherapy to identify obstacles to experiencing rewards and to devise strategies for enhancing reward-related processes. Additionally, considerable progress has been made with regard to using BA as a “carrier intervention” for treatment modules that specifically promote the reconstruction of reward processing. Augmented by savoring and mental imagery, the strengths of BA can be fully utilized and implemented as a stand-alone intervention or in group formats prior to routine individual care.