Description of the research project:

Mentalizing Positive Emotions in Borderline Pathology and Psychotherapy

1) Research questions

Introduction

1) Do positive emotions predict increases in resilience and life-satisfaction in a clinical sample of patients with borderline personality disorder (BPD)?

2) Does adding a new “mentalizing positive affect”-intervention to mentalization-based psychotherapy (MBT) enhance resilience and life-satisfaction by increasing positive emotions?

Question 1: Borderline personality disorder (BPD) is characterized by pervasive instability in affect, interpersonal relations and self-image (1). Research on affect in BPD has primarily focussed on affective instability and negative emotions (e.g. dysphoria, or anger), while less is known of positive emotions (e.g. joy, or pride) and their correlates in BPD. A few studies investigating affective instability using ecological momentary assessment included measures of positive emotions. They found that high intra-individual variability in affect valence, sudden decreases in positive affect, and an overall negatively biased recall pattern characterizes BPD (2-5). When positive and negative affect was examined separately, complex findings emerged. Research on emotions suggest that positive and negative emotions are two higher-order dimensions of emotional experience, and that they each show considerable specificity in terms of differential associations with various variables, including psychopathology, and health-related outcomes (6-8).

Evidence supportive of the “broaden and build” theory proposes that positive emotions help people build lasting resources and produce an upward spiral towards enhanced emotional well-being – rather independently of negative emotions (9-12). Indeed, to the extend that mental health is a psychological state of well-being, not merely the absence of a mental disorder, exploring possible relationships between psychopathology, positive emotions and psychological resources is important. Of particular relevance, in this context, is a study by Cohn and colleagues, which found that daily positive emotions over the course of one month significantly predicted increases in both resilience and life-satisfaction among non-clinical participants. Levels of negative emotions did not mediate this relationship (13). Because there may be a ratio by which the relationship between positive and negative emotions contributes to human flourishing (14), it is unknown whether these results generalize to clinical

populations. Hence, the proposed study aims to investigate the role of positive emotions through replicating the study by Cohn and colleagues in a sample of patients with BPD.

**Question 2:** The paucity of research on positive emotions is also evident in the treatment research on BPD. Most evidence-based treatments and randomized controlled trials (RCTs) aim to reduce negative affect and provide symptom relief (15), whereas positive emotions are often not measured and not given much attention. For example, one RCT showed a decrease in BPD psychopathology and negative emotions, but no significant increase in positive emotions (16). This point to a need for developing new single interventions designed to enhance positive emotions. Mentalization-based therapy (MBT) is an evidence-based treatment that has demonstrated effectiveness in several well-conducted RCTs (17-19). Goals of MBT involve enhancing the ability to regulate affect and the development of more stable interpersonal relationships through the process of mentalizing (20,21). Even though mentalizing affective states is highlighted as an important intervention in MBT, mentalizing positive affects seems at risk of being overlooked.

Our overall hypothesis is that increasing awareness of positive emotions would enhance the effects of MBT, through adding a new "mentalizing positive affect" intervention in MBT therapy sessions. This, we conjecture, will contribute to increase resilience and life-satisfaction through enhancing positive emotions. The current study meets demands of more empirical evidence explaining the process of how and why therapy interventions work (22,23). Following recommendations for evidence-based case-studies\(^2\), testing mechanisms of change at both the therapist intervention and with-in patient levels can fruitfully be executed using case-based time-series designs (24-26). Such alternative research designs, that compliment RCTs, are called for within the field of psychotherapy research (23,27). Even though such designs cannot provide sharp-edge causality links, they do allow researchers to observe therapeutic processes by systematically tracking a few patients across baseline and intervention phases, potentially revealing mechanisms of change. We do not know how the intervention “mentalizing positive affects” will influence the process-change relations during the course of therapy sessions, that is, whether the specific intervention precede increases of positive emotions, or how this process interacts with other important variables. Hypothetically, if using a traditional between-subject design, it is possible that the overall correlation between the intervention “mentalizing positive affect” and positive emotions would be small or non-significant, possibly leading to the conclusion that the specific intervention was not important. This, however, could be an artefact of the method rather than clinical reality (26). That is why experimental, single-case intervention studies, in spite of their obvious limitations, have clinical and scientific value in psychotherapy process research.

1) Project description

Objectives
In a clinical sample of patients with BPD we aim to investigate:

1) Whether positive emotions predict increases in both resilience and life-satisfaction when controlling for potential co-variates such as negative emotions, depression and BPD severity.
2) Whether negative emotions mediate the relationship between positive emotions, resilience and life-satisfaction after controlling for depression and BPD severity.
3) Whether the intervention "mentalizing positive affect" improves resilience and life-satisfaction through enhancing positive emotions.

Materials & Methodology
Design: 1) a naturalistic, prospective study, and 2) a single-case, multiple-baseline, time-series study

Participants:
All patients consecutively diagnosed with BPD after referral to a specialized treatment unit in Roskilde, Region Zealand are considered eligible for the study.
Inclusion criteria: a) sufficiently fluent in Danish, b) meets the criteria for BPD according to the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) (28), c) female, and d) willing and able to give informed consent.
Exclusion criteria: a) a history of schizophrenia and/or bipolar disorder and b) current alcohol/drug dependence requiring specialized treatment.

Inclusion period: 1.4.2016 – 31.9.2017 (or until we obtain the planned sample size).

Sample size: We will recruit 110 participants. As a similar study finds significant results with a smaller sample size (N=86), we estimate that this is a conservative number of participants.

Measures: see appendix 1

Setting:
The project will be conducted in Psykiatrisk Klinik, Roskilde, which is a treatment unit specialized in treating BPD using MBT (20,21). The staff is trained MBT therapists and receives supervision from A, Bateman on a regular basis. Currently, there are 50 eligible participants. On average, the treatment
unit diagnoses 163 patients with personality disorders every year; the majority are females with BPD. Based on these numbers, we estimate that it is possible to reach the sample size within the planned inclusion period.

**Procedure**

**Study 1:** Participants will be recruited from a wait-list for MBT. Assessments will be conducted at: a) baseline (T1), b) daily, thorough ratings of emotions, resilience and life-satisfaction for the duration of 21 days, c) weekly ratings of BPD symptoms, and d) after 21 days (T2). We estimate that baseline and follow-up assessments will last for a total of 2 to 4 hours. We will explain the importance of consistent participation and instruct participants to conduct daily and weekly assessments (estimated time consumption 15 min) using an online web site. When necessary, we will provide an electronic tablet. **Study 2:** To meet eligibility for study 2, participants must demonstrate motivation by completing 75% of the assessment in study 1. From these eligible participants we will randomly choose five and randomly assign them to one of two therapists. During 6 months of individual MBT treatment therapists will administer WAI on a weekly basis at the end of every session. The participants will complete ZAN-BPD and PANAS between weekly sessions, and ER89, GRIT-S and SWLS every other month using an online web site. We will follow up on participants one month after treatment ends with all measures, except SCID-II and WAI-SR.

**Intervention and treatment adherence**

We add the intervention “mentalizing positive affect” which instructs therapists to focus on positive affects to the original version of the MBT adherence and competence scale (MBT-ACS) (29). We will write a manual under close supervision by A. Bateman and provide therapists with three hours of training. The experimental intervention will be initiated at a randomized start-point 1-5 months into treatment (see appendix 2). We will record all individual therapy sessions on video and code every other for adherence. Two experienced MBT raters will rate the recordings independently, and their inter-rater agreement will be calculated (30).

**Data analyses:** Analyses will be performed using SPSS and R. Data will be analysed for missing data. Participants who complete 75% of the daily ratings will be included in the analyses. Descriptive statistics and correlational analyses will be used to characterize the sample and test for inter-rater reliability. Scores for positive and negative emotions will be calculated for each day, averaged across the 21 days, and correlations between composite emotions and the outcome variables resilience and life-satisfaction will be used to examine objective one. These residual correlations are standardized regression coefficients when scores (T2) for resilience and life-satisfaction are regressed on emotions.
and baseline scores (T1) simultaneously. Next, to examine the second objective, a mediational model will test whether the relationship between T1 and T2 resilience and life-satisfaction is simultaneously mediated by positive emotions, negative emotions, and their interaction. A “balance point” of level of positive emotions is determined using a “pick a point” strategy (31). At this level of positive emotions, we will investigate whether increases in negative emotions predicts decrease of change in resilience and life-satisfaction. This will indicate whether a high level of negative emotions reduce the impact of positive emotions. Potential co-variates (e.g. depressive symptoms, BPD severity) influencing the relationship between emotions, resilience and life-satisfaction will be controlled for in analyses. To investigate objective three, we will apply adequate forms of multivariate modelling for process-change in single-case, experimental, time-series designs (24). Preliminary visual plots of the time-series data stream of positive emotions might reveal that the therapist initiation of the experimental interventions precedes increases of positive emotions during the course of treatment, if our hypothesis is correct. Cross-lagged correlations will demonstrate the relationship between the positive emotions and resilience revealing whether positive emotions precede increases in resilience. These cross-lagged correlations will reveal in what order fluctuations of the variables are associated in time. In an attempt to get an indication of causal and non-causal relations amongst the most important variables (PANAS, ZAN-BPD, WAI-SR, Grit-S, ER-89 and SWLS), we will adjust for autocorrelation and apply simulation modelling analysis (SMA).

2) Ethical considerations

The Regional Research Ethics Committee in Region Zealand has been consulted, and no approval was necessary. Data will be stored according to approval and regulations from the Danish Protection Agency and reported in anonymous form. All participants will receive written and oral information about the project. Participants can withdraw from the study at any point and withdrawal will have no impact on their treatment. We will pay up to 1000 kr. for participating in study 1 depending on the completion of the data. There is no payment involved in study 2.
References


(22) Kazdin AE. Evidence-Based Treatment and Practice: New Opportunities to Bridge Clinical Research and Practice, Enhance the Knowledge Base, and Improve Patient Care. Am Psychol 2008;63(3):146-159.


Appendix 1

General and personality psychopathology (baseline)
- Clinical syndromes (Axis-I psychopathology) are assessed with MINI-International Neuropsychiatric Interview (1).
- Personality disorders are diagnosed by SCID-II(2). The total number of criteria on Axis II indicates the severity of personality problems.

Borderline personality psychopathology (over time)
- The Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD) both interview and self-report will differentiate between affective and cognitive disturbance, impulsivity, disturbed relationships and BPD severity(3,4).

Positive and negative emotions
- The Positive and Negative Affect Schedule (PANAS)(5).

Resilience
- Ego-Resiliency Scale (ER89)(6).
- Short Grit Scale (Grit-S)(7).

Life satisfaction
- Satisfaction with Life Scale (SWLS)(8).

Therapeutic Alliance
- Working Alliance Inventory – Short Revised form (WAI-SR)(9,10)

Information regarding demographical, socio-economic status and recent major life-events will be collected during assessment procedures and from medical journals.

Reliability & validity
The semi-structured interviews (MINI, SCID-II, ZAN-BPD) and above self-report measures (ZAN-BPD, PANAS, ER89, GRIT-S, SWLS, and WAI-SR) have been used extensively and have demonstrated acceptable psychometric properties.
References


Appendix 2

Figure 1: Hypothetical data for a randomized start-point, multiple baseline design across participants. The intervention is introduced at five different randomized time points.