Presence of PTSD and emotion dysregulation among inpatients with substance use disorder, a feasibility study of a combined treatment for PTSD and difficulties in emotion regulation.

Protocol revised 15.03.24

REC number #203 428/2020

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Presence of PTSD and emotion dysregulation among inpatients with substance use disorder, a feasibility study of a combined treatment for PTSD and difficulties in emotion regulation.

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Abstract

There are high rates of co-occurring posttraumatic stress disorder (PTSD) among patients in treatment for substance use disorder (SUD). PTSD and SUD should be treated simultaneously, which is rarely the case. The reluctance to offer trauma-focused treatment is partially due to fear of increased risk of dropout. PTSD is related to emotion dysregulation and elevated psychological burden, higher dropout rates and increased risk of relapse. In this project, we plan to assess if it is relevant, feasible, acceptable and safe to add a combination of a Narrative Exposure therapy (NET) and Dialectical behaviour therapy for substance abuse disorder skills training (DBT-SUD Skills) to standard inpatient SUD treatment (N approx. = 100). We will assess relevance based on the prevalence of PTSD/SUB-PTSD and traumatic experiences, suicidal behaviour, self-harm, and the severity of difficulties in emotion regulation and emotional avoidance. We will assess feasibility and acceptability with treatment participation among patients and the subjective experience of the treatment. We will measure safety with the rate of dropout and destructive behaviour in the treatment period. We will evaluate the potential benefits of the combined treatment by measuring change in symptom severity post-treatment, and at 3 and 12 months follow-up, as well as rates in relapse to substance abuse. This project can increase knowledge about psychological mechanisms in co-occurring PTSD and SUD and increase the quality of treatment for this vulnerable patient population.

Introduction

People with SUD are at high risk of developing serious health problems and have high mortality risk (Chesney et al., 2014); this is costly both for the individual and for our society. There are effective evidence-based treatments available for SUD (McGovern & Carroll, 2003), but 40%-70% of patients will relapse into substance abuse within a year of treatment (Roberts et al., 2016). Approximately 36-50% of patients with SUD have comorbid PTSD (Brady et al., 2004). Patients with a combination of SUD and PTSD benefit less from standard SUD treatment. They have stronger drug cravings (Sinha, 2009), more severe substance use (Najavits, 2014), higher risk of SUD treatment dropout and relapse to drug abuse (Ouimette et al., 1998; Tull et al, 2013; Westphal et al., 2017). The lack of benefits from standard SUD treatment could be related to their difficulties in emotion regulation and emotional avoidance (Westphal et al., 2017), as substance abuse can be used to avoid difficult emotions (Linehan, 2013).

National and international guidelines recommend that SUD and comorbid PTSD should be treated simultaneously and within the same treatment system (NICE, 2018), but that is rarely the case (Mills et al., 2006; Ouimette et al., 2003). Trauma focused exposure therapies, are effective to reduce PTSD symptoms and thus over time, can reduce the risk of relapse into substance abuse (Roberts et al., 2016). NET is a trauma focused therapy developed for people with complex trauma history that have been exposed to persistent and repeated trauma (Elbert, Schauer, & Neuner, 2015). Patients with comorbid SUD and PTSD have usually experienced multiple types of trauma (Ford & Smith, 2008), and NET would therefore be a good treatment fit for this population. Unfortunately, trauma focused therapies can cause an increase drop-out from SUD treatment, possibly due to increased distress during treatment (Roberts et al., 2016). DBT is an evidence-based treatment for Borderline personality disorder (Linehan, 1993), and DBT-SUD skills has shown promising results in the treatment for people with co-occurring SUD and emotional dysregulation (Flynn et. al., 2019). In DBT-SUD skills, the focus is to teach the patient how to use effective and safe strategies to manage their emotional reactions, replacing destructive strategies such as substance abuse (Linehan, 1993). By combining treatment interventions focused on reducing PTSD symptoms among traumatized patients in SUD treatment, and teaching them methods to regulate one's emotions, one could safely increase the treatment effect without increase in dropout.

As far as we know no studies have combined trauma focused therapy (NET) and treatment to increase the ability to regulate emotions (DBT-SUD skills) among SUD patients.

This project aims to evaluate whether integrating a combination of NET and DBT-SUD skills into a SUD treatment is relevant, feasible, acceptable and safe, and to assess its potential benefits.

METHODS

Design:

This is a repeated measures follow-up feasibility study without control group.

The primary objective

Relevance, feasibility, acceptability and safety will be measured by registering:

1) The severity of substance use, the prevalence of PTSD/SUB-PTSD, the prevalence of traumatic experiences also as offenders, suicidal behaviour and self-harm, and the severity of difficulties in emotion regulation and emotional avoidance.
2) The percentage of patients that participate in NET and DBT-SUD skills. The dropout rate from the standard treatment, NET and DBT- SUD skills.
3) The percentage of DBT-SUD skills sessions participated in, as well as the percentage of completed DBT homework.
4) A self-report questionnaire is designed to evaluate the experience of the treatment. Rating how different elements of the treatment are experienced on a 5-point scale. There are also open-ended questions about what is most and least helpful in the treatment.
5) The rate of destructive behaviour, such as suicidal behaviour, episodes of drug use and self-harm in the treatment period.

The secondary objective

1) Evaluate the relationship between severity of substance abuse, destructive behaviours such as suicidal behaviour, self-harm and use of violence with experiences of traumatic events, PTSD symptoms severity, difficulties in emotion regulation, emotional avoidance, and experience of shame and guilt.
2) Evaluate the change from baseline to post-treatment, and at 3 and 12 months follow up, in PTSD symptom severity, depressive symptoms, difficulties in emotion regulation, emotion avoidance, and experience of shame and guilt.
3) Compare relapse rates at 3- and 12-months follow-up to previous rates at MBS.

Recruitment of participants:

All patients admitted to the inpatient program at Molde Treatment Center (MBS) from May 2021 to May 2024 will be invited to participate (N approx. = 100). All participants will participate in the standard treatment at MBS. Those who meet the inclusion criteria for further intervention will also be invited to participate in NET and/or DBT-SUD skills. Recruitment and follow-up plan is shown with patient flow chart in fig. 1.

Data collection

We will collect data: Five weeks after admission (T0), four weeks after completion of NET (T1), and at 3 months (T2) and 12 months (T3) follow up after discharge from MBS. An overview of measurements at each data collection point can be seen in table 1. For follow-up, patients will be contacted through telephone, nearest of kin, or social media. Follow-up will be conducted with an outpatient appointment or a home visit. Participation at 3- and 12-month follow will be rewarded with a gift card.

***** Table 1******

****** Fig. 1******

All patients participating and all staff members working in the intervention period will be invited to answer a self-report questionnaire designed to assess the feasibility and acceptability of their experience with the treatment interventions (attachment 1 and 2).

General inclusion criteria for the study:

1) Fit general inclusion criteria for the in-patient program.
2) Speak Scandinavian (Norwegian, Danish and/or Swedish).
3) Be willing to sign the written informed consent.

General exclusion criteria for the study:

1) Have a clinically significant low cognitive- and/or linguistic functioning that hinders the patient in understanding and answering the questions on the self-report instruments.

Inclusion criteria for NET intervention:

1) Experience of an aversive event that fits criteria A for PTSD as defined by Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) (American Psychiatric Association [APA], 2013).
2) Experience symptoms of PTSD as defined by the DSM-V (APA, 2013), or subthreshold PTSD (Grubaugh et al., 2005), or experience clinically relevant symptoms as evaluated by a NET therapist.
    a. Subthreshold PTSD is defined as having experienced a traumatic event (Criteria A), meeting Criteria B (re-experiencing symptoms), Criteria E (one-month symptom duration), and Criteria F (significant distress or functioning impairment) and either Criteria C (avoidance or numbing symptoms) or Criteria D (hyper arousal symptoms).

Inclusion criteria for DBT intervention:

1) A history of pervasive difficulties in understanding and managing emotions as evaluated by an assigned DBT therapist.
2) Manage to commit to participating in the DBT- skills training.

Exclusion criteria for NET and/or DBT-SUD skills

1) Being actively psychotic.
2) Have a Body Mass Index (BMI) under 17.
3) Severe dissociation.
4) An ongoing traumatic contact with the perpetrator.

The intervention

The intervention period will be from May 2021- October 2024.

Molde Treatment Center (MBS)

The institution is an inpatient, drug rehabilitation centre with room for 15 patients. The average treatment period is 6 to 9 months. Before admission, the patient usually has already been through the detox and abstinence phase. Patients are expected to be absent from substance use while in treatment at the facility. Standard treatment at MBS consists of a version of the therapeutic community (TC) a purposefully designed miniature drug-free social environment or residential treatment setting with clear rules to promote social and psychological change

(Vanderplasschen, Vandevelde, & Broekaert, 2014), family therapy (Hogue et.al, 2022), and CBT for SUD, that uses cognitive behavioural principles to manage drug addiction. CBT-SUD is delivered both individually and in-group settings (Otto et al., 2014).

Narrative exposure Therapy (NET) is a treatment for trauma disorders, particularly for individuals suffering from complex and multiple trauma (Elbert, Schauer, & Neuner, 2015). With the guidance of the therapist, a patient establishes a chronological narrative of his or her life, concentrating mainly on their traumatic experiences represented with stones, but also incorporating some positive events represented with flowers (Schauer, Neuner & Elbert, 2011). For patients who have themselves been offenders, we will add the narrative of violent/sexual offences represented by sticks as characterised in the further developed version of FORNET (Elbert et al., 2012). The therapy combines mapping, accepting and exposure to one's experiences. In the last session, a documented autobiographic narrative created by the therapist is presented to the patient.

The NET intervention consists of 10 – 18; 90-minute sessions with a NET therapist once or twice a week for 5 – 10 weeks.

- 1- 2 sessions of introduction and psychoeducation on PTSD - SUD and NET treatment.
- 1 – 2 sessions laying the lifeline.
- 3 – 15 sessions with working and writing the narrative, with the narrative repeated at the start of each session.
- 1 session where the complete narration is read and handed out in the last session.

The patient often chooses to use the narration in family therapy sessions and share in treatment with a group of staff and fellow patients they themselves select.

DBT-SUD skills is a group skills training component of Dialectical Behaviour therapy a comprehensive treatment focused on extensive difficulties in emotion regulation (Linehan, 1993). In this project, we will use a combination of the trans-diagnostic skill-training model by Neacsiu (Linehan, 2014; Neacsiu et. al., 2014) with an addition of SUD-specific skills. Every patient participating in the DBT skills training is assigned a DBT-trained therapist.

The DBT-SUD Skills intervention consists of:

- 2-3 sessions with a DBT therapist focusing on treatment orientation – mapping the patients' goals, obstacles, and resources, DBT- hierarchy, and commitment.

- Skills training – 20, two-hour sessions – twice a week over a period of 10 to 11 weeks. The skills consist of Mindfulness, Distress Tolerance, Interpersonal Effectiveness, Emotion regulation, and SUD-specific skills.
- Chain analysis in case of an episode of substance use or other dangerous destructive behaviour.
- One summary session with a focus on goals reached and troubleshooting.
- Support from DBT skills-oriented staff and environment.

Two DBT therapists lead the group, and each group consists of approx. 6-8 participants.

Patients start NET and DBT- SUD skills training one to two months after admission.

Measurement

Demographics. Basic demographic information from the participants is registered at admission. This includes age, gender, nationality, immigration status, level of education, employment/support status, living situation, marital status, children and custodianship, medical status, and legal status e.g. if the treatment is part of a criminal sentence. As well as questions regarding smoking or non-smoking and substance use cravings.

Substance use

Information about ICD-10 drug diagnoses (F10-19, indicating substance used) and previous SUD inpatient stay, previous inpatient stay (yes/no), onset of substance use, poly drug use (yes/no), and injecting drug use (yes/no) will be obtained from medical records.

Alcohol Use Disorders Identification Test (AUDIT) is a 10-item screening instrument to assess severity of alcohol consumption, drinking behaviours, and alcohol-related problems. Audit scores range from 0-40 with higher scores indicating greater problems related to alcohol consumptions (Aasland, Amundsen, Bovi, Fauske & Mørland, 1990). In this project, the consumption score (question 1) with cut-of score 3 and over (drinking alcohol 2 -3 times a week) is coded into a dichotomous variable of current alcohol use (yes/no) and sum score used to assess severity of alcohol related problems. At 3 months or 12 months evaluation a cut-off score 3 and over on question 1 is registered as relapse.

Drug Use Disorder Identification Test (DUDIT) is a nine item self-report instrument developed for identification of individuals with drug-related problems. DUDIT scores range from 0-44 with higher scores indicating more drug use and drug related problems (Berman, Palmstierna, Källmén, & Bergman, 2007). In this project, the substance use frequency score (question 1) is used to identify current substance use with cut-off score score 3 and over (using substances 2-3

times a week) will be coded into a dichotomous variable (yes/no). The sum score is used to assess severity of substance related problems. At 3 months or 12 months evaluation a cut-off score 3 and over on question 1 is registered as relapse.

Subjective substance craving the past week is measured on a scale from 0-10, where higher score indicates more substance craving.

Co-occurring psychiatric disorders and symptoms. The presence of current co-occurring psychiatric- and/or personality disorders is obtained from medical records after the standard psychological evaluation at MBS.

Patient Health Questionnaire (PHQ-9) the severity of symptoms of depression is measured with a nine-item self-report providing a 0 to 27 severity score. Higher scores indicate more severe symptoms of depression (Kroenke & Spitzer, 2002).

General Anxiety Disorder-7 (GAD-7) is a seven-item self- rapport instrument used to screen for the presence of a clinically significant anxiety disorder(s). GAD-7 provides a 0 to 21 severity score, with higher score indicating higher presence of symptoms of anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006).

The Sleep Condition Indicator (SCI) is an eight-item rating self-report scale developed to screen for insomnia disorder. The SCI comprises of items on sleep continuity, items on sleep satisfaction/dissatisfaction and items on attributed daytime consequences of poor sleep. Higher score indicates fewer symptoms of insomnia (Espie et al., 2018).

The Brief Psychiatric Rating Scale (BPRS-4) is a brief 7-item interview designed to measure experiences and severity of symptoms of psychosis. Higher score indicates more severe symptoms of psychosis (Kopelowicz, Ventura, Liberman & Mintz. 2008).

Adult ADHD self-report scale- V 1.1 (ASRS-V1.1) is a short six item self-report screening instrument of adult ADHD, This version was developed to have optimal concordance with the clinical classification, and has been evaluated with a SUD population (van de Glind et al., 2013).

Traumatic experiences and PTSD symptoms.

Stressful Life Events Screening Questionnaire-Revised (SLESQ) is self-report instrument designed to map and assess 15 potentially traumatic experiences (Goodman et al., 1998). The score is used to identify experiences of potential traumatic events. For this project, items asking about experiences where the participant caused potentially traumatic experiences to others are added. This is to identify violent offenders. Participants with one yes or more, answer PTSD Checklist for DSM-5.

PTSD Checklist for DSM-5 (PCL-5) is a self-report instrument developed for quick screening of

PTSD symptoms. Sum scores range from 0-80, with a score over 33 indicating the presence of PTSD (Weathers et al., 2013). In this study the symptom sum score is used to screen for and identify potential presence of PTSD symptoms and further assess the severity of PTSD symptoms, those that score above 33 are evaluated further in a structured interview.

Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) is a 30-item structured interview used to make current (past month) diagnosis of PTSD, make lifetime diagnosis of PTSD, and assess PTSD symptoms over the past week (Weathers et al., 2018). Frequency and intensity rating is summed to create an overall PTSD symptom severity score and is used to generate a categorical diagnosis (PTSD/Sub-PTSD vs non-PTSD). In this project, we will both use the categorical diagnosis to compare those with and without PTSD/Sub-PTSD, as using the overall PTSD symptom severity scores (Weathers et al., 2018).

The Dissociative Experiences Scale (DES) is a 28-item, self-administered inventory to measure the frequency of dissociative experiences and evaluation of dissociative symptoms. Participants select the percentage of time they experience dissociative experience between 0% (never)-100% (always), mean percentages is used to assess severity of dissociation with higher score indicating higher severity (van Ijzendoorn & Schuengel, 1996).

Emotion regulation.

Difficulties in Emotion Regulation Scale (DERS) is a self-report instrument consisting of 36 items meant to measure difficulties in emotion regulation, higher scores ranging from 36- 144 indicate more significant difficulties in emotion regulation (Gratz & Roemer, 2004). We will use the cut score of 97 to identify severe difficulties in emotion regulation (Bemmouna et. Al 2022; Neacsiu et. al., 2014).

The Emotional Avoidance Questionnaire (EAQ) is a 20-item self-report instrument to measure emotional avoidance. For this project, a total score representing overall tendencies to engage in emotional avoidance is used, with a higher score indicating higher tendencies for emotional avoidance (Taylor, Laposa & Alden, 2004).

Personal Feelings Questionnaire (PFQ-2). As a part of this project, we did a translation and assessed the psychometric properties of the PFQ-2, both in clinical and community-based populations in Norway (Vigfusdottir et al., Manuscript submitted for publication). The PFQ-2 is a 22-item self-report instrument designed to measure proneness to guilt and shame. PFQ-2 consists of two subscales: Shame (10 items) and guilt (6 items), as well as 6 filler items. Higher score on each subscale indicate more proneness to each emotion (Harder, Cutler & Rockart, 1992).

Aversive behaviours: Self-harm, Suicide behaviour.

The Deliberate Self-Harm Inventory (DSHI). As a part of this project, we did a translation and assessed the psychometric properties of DSHI in a Norwegian population (Vigfusdottir et.al, 2020). DSHI is a 17 –item behaviourally based, self-report instrument to assess deliberate self-harm (Gratz, 2001). In this project we create a continuous variable on frequency of self-harm behaviour and a dichotomous variable on presence of self-harm (Yes/No).

Columbia-suicide severity rating scale (C-SSRS) is a suicidal ideation and behaviour-rating interview created to evaluate suicide risk. The interview consists of 10 categories with binary responses (yes/no) to indicate a presence or absence of the behaviour. The outcome of the C-SSRS is a numerical score obtained from the categories (Posner et.al. 2011).

Quality of life:

EQ-5D-3L is a standardised measure of health status developed to provide a simple, generic measure of health-related quality of life. It measures five dimensions of health: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. It also provides score ranging from 0-100 as a measure of overall self-rated health status, with higher score indicating better health (The EuroQol Group, 1990).

The International Physical Activity Questionnaire (IPAQ) is a rapport instrument consisting of seven items designed to obtain health information–related to physical activity (Craig et al., 2003).

Dropout from treatment:

Dropout is registered, and dichotomous variables are created (yes/no). In case of dropout, time from admission to dropout is registered.

Statistical analysis

To assess if adding DBT-SUD skills and NET to standard SUD treatment is relevant, feasible, accepted and safe descriptive statistics will be provided. Descriptive statistics for demographic and psychological factors measured on a continuous scale will be reported in terms of mean or median value with appropriate measure on spread (standard deviation or quartiles) whereas the distribution of categorical factors will be reported in terms of proportions and percentages. Two-sample T-tests will be applied to compare individuals with PTSD/SUB-PTSD vs non-PTSD, abuser vs. non-abuser, participant vs. non- participant, on mean scores on emotions regulation, emotional avoidance, shame, guilt and substance abuse. Analysis of covariance (ANOVA) will be applied to be able to adjust for differences in potential confounders. Non-parametric Kruskal-Wallis tests will be considered if data are skewly distributed. Logistic regression analyses, with calculation of exposure odds ratio, is then relevant for performing adjusted analyses.

Furthermore, Pearson's correlation coefficient and linear or general linear regression analyses is relevant for analysing association between severity of PTSD symptoms on a continuous scale, and degree of emotion regulation, emotional avoidance, shame, guilt, substance use and substance cravings. The non-parametric Spearman rank correlation coefficient is used as an alternative for non-normal data. Logistic regression will be conducted to compare dropout (yes/no; T0, T1) and relapse (yes/no) at 3-months and 12 months follow up (T2, T3) to psychological factors.

To evaluate potential benefits of DBT-SUD skills and NET and symptom reduction at post-treatment (T1), 3 months (T2) and 12 months (T3) follow up, and if the data adhere to assumptions of normal distribution we will conduct one-way repeated measures linear mixed model, adjusting the alpha level to prevent chance capitalization in multiple comparisons we will utilize Holm-Bonferroni corrections. If the data violate the assumption of normal distribution, a generalized mixed model will be conducted. A logistic regression test will be conducted to compare rates of dropout (T0, T1) and relapse at 3-month and 12 months follow up (T2, T3).

Ethics

Attending study is voluntary and requires an informed consent. Refusing participation in the study will not affect patient's access to treatment. The interventions in the study will not hinder any other well-documented treatment at MBS. The participation is time consuming and demanding for the patient and could temporarily affect the patient's ability to participate in social interaction in the therapeutic community. Answering questions about traumatic experiences can potentially cause discomfort. A therapist and other staff at the clinic will be there to help the patient regulate possible transitory increase in PTSD symptoms. There are number of potential benefits for participants in this project such as access to treatment that can lead to symptom reduction, less suffering, greater quality of life and reduction in relapse into drug abuse. Benefits from participation is supposed to outweighs potential discomfort.

***Data Protection*:** All data will be stored according to established protocols on data protection of More & Romsdal Health trust. The data will be sought to store for up to 5 years after the end of the project. The information will be stored in a de-identified manner. The scoring key will be stored separately in a locked cabinet at MBS, and only two PhD candidates will have access to it. All statistical analysis and use of data collected in this project will be done on a group level.

Strength and limitations

Strength: This is a follow up study with repeated measures in a quite a large sample in naturalistic long-term treatment, making the results generalizable. We have previous data from prior study in the institution on dropout- and relapse rates to use as a comparison.
The results of the study gives relevant information in a population that is often excluded from studies because of drug abuse.
Limitations: With a lack of a randomized control group, one cannot measure the direct effect of the intervention.

SUMMARY

There are high rates of PTSD among patients in with SUD, and a high risk of relapse after treatment. By identifying subgroups of patients with SUD, comorbid PTSD and difficulties in emotion regulation, and develop treatment targeting specifically those areas, one could potentially decrease the suffering of that patient population and decrease relapse to substance abuse.
This study aims to develop and check the relevance, feasibility, acceptability and safety of adding to standard SUD inpatient treatment a combination of at trauma focused therapy (NET) and treatment for difficulties in emotion regulation (DBT- SUD - Skills). The aim is to measure the presence of trauma and trauma-related difficulties, assesses the pits and falls of the treatments, participation and its safety and potential benefits. Further the study makes it possible investigate the relationship between substance abuse, PTSD, difficulties in emotion regulation, emotional avoidance, shame, guilt and destructive behaviour such as suicide behaviour, self-harm and relapse into substance abuse.

Trial status

We are still open for recruitment, and the last participant is scheduled to be included by the start of May 2024. We plan for the last participant to complete treatment participation by end of October 2024. The data collection for the 3-month and 12-month follow-up will be completed by the end of October 2025.

Future research: If the intervention proves to be relevant, feasible, acceptable and safe, and of potential benefit for the patients, the future aim is to conduct a multicentre Randomized Control Trial (RCT) on the effect of combined NET and DBT-SUD skills integrated into SUD treatment.

Declarations

Ethics approval and consent to participate: The Helsinki Declaration is followed and relevant permissions to the Regional Ethics Committee (REC) and Data Protection Services (DPS) is attained #203 428/2020**.** Informed consent was obtained from all individual participants included in the study.

Consent for publication: Participants gave written consent for publication of all results not traceable to individual participant.

Availability of data end material**:** The data can be made available on request.

Competing interests**:** The authors declare that they have no conflict of interest.

Funding: This study was funded by the Department of Psychiatry, Møre og Romsdal Hospital Trust.

Author contributions: All authors contributed to the study conception and design. Johanna Vigfusdottir and Edvard Breivik perform material preparation, data collection and analysis. All authors contribute to the design of the study. Johanna Vigfusdottir wrote the first draft of the manuscript and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Acknowledgements: All staff at Molde treatment centre that supported and participated in treatment intervention made this project possible.

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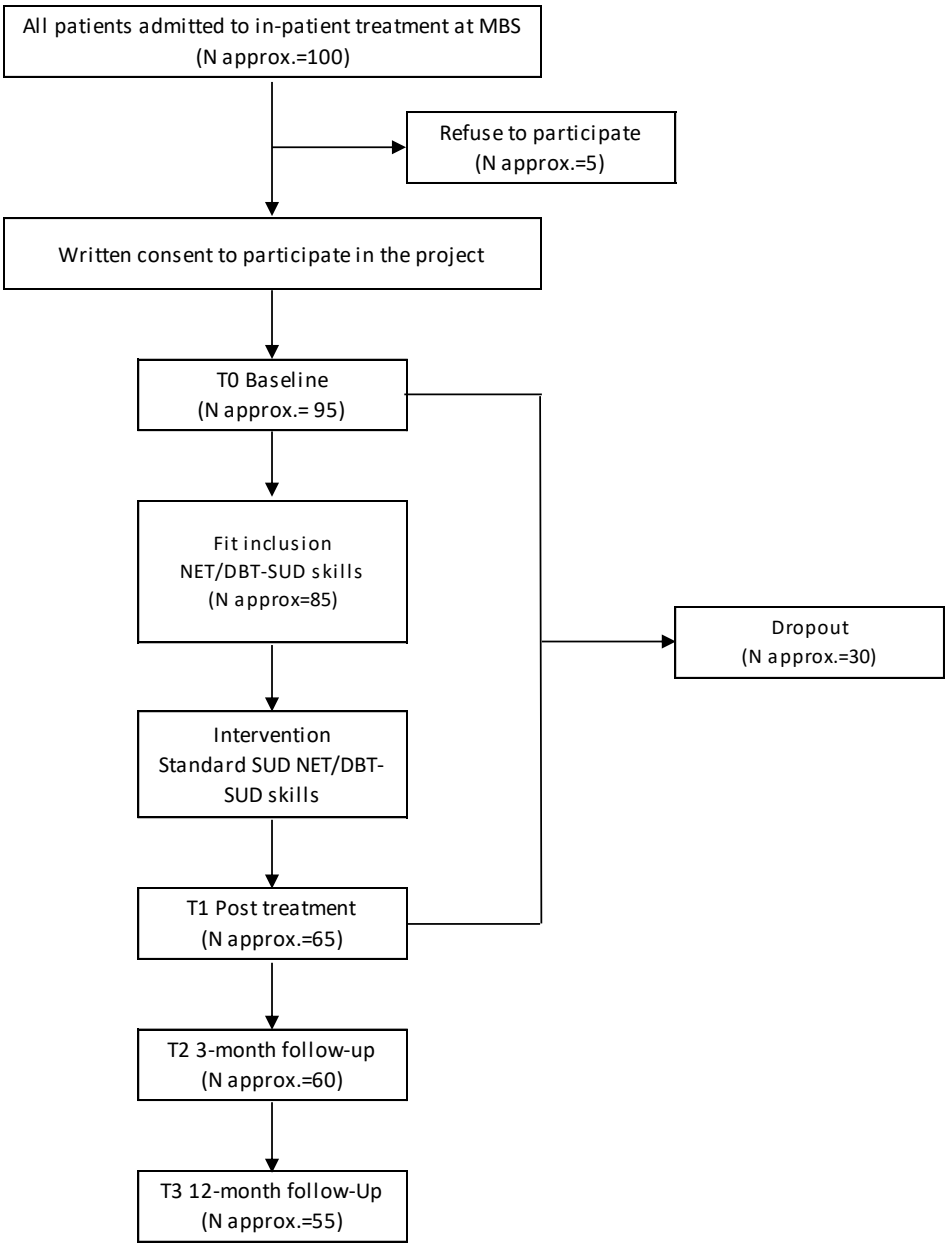
Table 1. Measures and assessment points used in the study

Variable	Measure	Assessment method	T0 Baseline	T1 Post-treatment	T2 3 month	T3 12 month
Demographics		Self-rapport	X	---------	---------	---------
Alcohol abuse	AUDIT	Self-rapport	X	---------	X	X
Substance abuse	DUTIT	Self-Rapport	X	---------	X	X
PTSD Symptom	SLESQ - KBL	Self-rapport	X	---------	---------	---------
PTSD Symptom	PCL-5	Self-rapport	X	X	X	X
PTSD Diagnosis	CAPS	Interview	X	---------	---------	---------
Dissociation	DES	Self-Rapport	X	X	X	X
Depression symptom	PHQ-9	Self-Rapport	X	X	X	X
Anxiety symptoms	GAD-7	Self-Rapport	X	X	X	X
Psychosis symptom	BPRS-4	Interview	X	X	X	X
Attention deficit	ASRS-A	Self-Rapport	X	X	X	X
Insomnia	SCI	Self-Rapport	X	X	X	X
Emotion regulation	DERS	Self-Rapport	X	X	X	X
Emotional avoidance	EAQ	Self-Rapport	X	X	X	X
Shame / Guilt	PFQ-2	Self-Rapport	X	X	X	X
Self-Harm behavior	DSHI	Self-Rapport	X	X	X	X
Suicide behavior	CSSRS	Interview	X	X	X	X
Quality of Life	EQ-5Q-ED	Self-Rapport	X	X	X	X
Physical activity	IPAQ	Self-rapport	X	X	X	X

Fig. 1 Participant flow chart



Attachment 1
Translated version

Your experience of DBT-SUD skills training and NET, patient.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
How did you experience DBT-SUD skills training?					
Instructive	1	2	3	4	5
Useful for my problems	1	2	3	4	5
To difficult	1	2	3	4	5
Meaningsful	1	2	3	4	5
Helpful	1	2	3	4	5
Feasible	1	2	3	4	5
Relevant for my problems	1	2	3	4	5
How did you experience NET?					
Instructive	1	2	3	4	5
Useful for my problems	1	2	3	4	5
To difficult	1	2	3	4	5
Meaningsful	1	2	3	4	5
Helpful	1	2	3	4	5
Feasible	1	2	3	4	5
Relevant for my problems	1	2	3	4	5

What has been most helpful in the treatment?

What has been least helpful in the treatment?

Attachment 2

Translated versjon

Your experience of DBT-SUD skills and NET training, staff.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
How did you experience DBT-SUD skills training??					
Instructive for the patient	1	2	3	4	5
Useful for the patient	1	2	3	4	5
To difficult for the patient	1	2	3	4	5
Meaningsful for the patient	1	2	3	4	5
Helpful for the patient	1	2	3	4	5
Feasible for the patient	1	2	3	4	5
Feasble for the staff	1	2	3	4	5
Relevant for patient	1	2	3	4	5
Hvordan opplevde du behandlingen med NET?					
Instructive for the patient	1	2	3	4	5
Useful for the patient	1	2	3	4	5
To difficult for the patient	1	2	3	4	5
Meaningsful for the patient	1	2	3	4	5
Helpful for the patient	1	2	3	4	5
Feasible for the patient	1	2	3	4	5
Feasible for the staff	1	2	3	4	5
Relevant for patient	1	2	3	4	5

What has been most helpful in the treatment?

What has been least helpful in the treatment?