Common factors, Responsiveness and Outcome in Psychotherapy (CROP): study protocol for a naturalistic prospective cohort study of psychotherapy in Denmark

Line Rettig Lauritzen,1 Celia Faye Jacobsen,1 Jan Nielsen,1 Susanne Lunn,1 Birgit Bork Mathiesen,1 Fredrik Falkenström,2 Stig Poulsen1

ABSTRACT

Introduction The aim of the Common factors, Responsiveness and Outcome in Psychotherapy (CROP) study is to identify client and psychologist characteristics and therapeutic processes associated with the outcome of psychotherapy delivered by psychologists employed in the Danish primary sector or fully self-employed. The study addresses two main questions. First, how are specific characteristics of clients and psychologists related to the outcome of therapy and do these characteristics moderate the outcome of different psychotherapeutic approaches? Second, to what extent do therapists adapt their approach to client characteristics and preferences and how does such responsiveness impact the process and outcome of therapy?

Methods and analysis The study is a naturalistic prospective cohort study carried out in collaboration with psychologists in private practice in Denmark. Self-reported data are collected from the participating psychologists and their participating clients before, during (weekly and postsession) and after psychotherapy (at end of treatment and 3 months follow-up). The estimated target sample size is 573 clients. The data are analysed using multilevel modelling and structural equation modelling approaches to capture predictors and moderators of the effect and rate of change in psychotherapy as well as session-to-session changes during the therapy process.

Ethics and dissemination The study has been approved by the IRB at the Department of Psychology, University of Copenhagen (IRB number: IP-IRB/01082018) and the Danish Data Protection Agency. All study data are fully anonymised and all clients have given informed consent to participation in the study. The study findings will be presented in articles in international, peer-reviewed journals as well as to psychotherapy practitioners and other professionals across Denmark.

Trial registration number NCT05630560.

INTRODUCTION

Research shows that even though psychotherapy is generally effective,1 a substantial amount of patients do not achieve a satisfactory treatment outcome. Systematic reviews have found that full remission at the end of treatment was achieved by 48% of patients with anxiety2 and 43% of patients with depression.3 Even lower remission rates have been reported; for instance, in a large scale, high-quality Dutch trial comparing cognitive-behavioural and psychodynamic therapy for depression,1 only 22.7% of treatment completers were fully remitted. Accordingly, there is a need for identifying methods improving the outcome of psychotherapy.

A complicating factor is that although several psychotherapy methods are effective for specific disorders, differences in efficacy between well-established methods are typically negligible.1 4 5 This has led researchers to argue that psychotherapeutic outcome is largely predicted by treatment factors common to all psychotherapeutic approaches. A large body of research documents that positive qualities and skills of the therapist such as empathy with clients6 or ‘facilitative interpersonal skills’7 contribute to the establishment of a collaborative interpersonal relationship
between client and therapist and are associated with better outcome of therapy.\textsuperscript{5} On the other hand, even the common factor that has been subjected to most research, the \textit{therapeutic alliance}, only accounts for relatively limited proportions of the outcome variance.\textsuperscript{8,9}

While the importance of the common factors is well documented, it has been harder to document the efficacy of specific therapeutic techniques, and studies attempting to establish causal links between such techniques and outcome have often found no or very modest associations (eg, Ahn and Wampold, Bell \textit{et al} and Longmore and Worrell\textsuperscript{10-12}). However, recent studies using more sophisticated methods of analysis indicate that it is indeed possible to demonstrate causal relationships between theory-specific elements of treatment and therapeutic outcome.\textsuperscript{13} Accordingly, both common and specific factors are likely to contribute to therapeutic outcome.

Furthermore, regardless of the specific approach, effective psychotherapy is characterised by adequate therapeutic \textit{responsiveness}, that is, the therapists’ ability to adapt their approach to client characteristics and preferences.\textsuperscript{14,15} One overall approach to therapist responsiveness is to systematically choose different types of therapy for clients with different characteristics. This treatment paradigm, which is currently known as \textit{precision} or \textit{personalised psychotherapy} (Cohen and DeRubeis\textsuperscript{16}) and corresponds to what has been designated \textit{aptitude–treatment interaction};\textsuperscript{17} has received increasing attention over the last decade. Research indicates that certain patient characteristics such as sociodemographic variables, comorbidity, treatment preferences and personality factors are systematically related to differential outcomes of various types of treatment.\textsuperscript{16,18,19} Furthermore, recent research suggests that personalised psychotherapy based on robust models of indicators for specific treatments may be within reach and has the potential to enhance the outcomes of psychotherapy.\textsuperscript{20}

Responsiveness goes beyond the assignment of different treatment packages to clients with specific characteristics and may also be manifested by, for example, extending or abbreviating therapies according to the client’s needs\textsuperscript{21} and/or by continuously adapting techniques and interventions to the client throughout the psychotherapeutic process. Responsiveness may also refer to the way the therapist takes into account the interaction of common and specific factors during therapy, that is, that the impact of specific interventions is intrinsically related to the presence of common factors such as therapeutic alliance, therapist empathy, etc.\textsuperscript{22} While research has documented that therapist responsiveness is a ubiquitous phenomenon,\textsuperscript{14} the implications for outcome of therapist responsiveness during the therapeutic process are less well studied. Thus, even though a more general adaptation of therapy to the specific client seems warranted, this does not mean that responsiveness in clinical practice is always beneficial. Individual adaptation of the therapy to the client entails the risk of a less systematic approach, which may ultimately have a negative impact on outcome.

Overall, the existing evidence indicates that therapeutic improvement is facilitated through a complex interaction of common and specific factors and that therapists differ in their ability to implement such factors in a responsive manner that suits the individual client’s needs. Accordingly, there is a need for research investigating these interactions and therapists’ approaches to adaptation of therapy in naturalistic settings.

**Aims**

The present study focuses on psychotherapy conducted by psychologists who are either fully self-employed or employed in the Danish primary sector where clients are partly reimbursed. The study aims to use the natural variation in therapist, client and treatment characteristics found in psychotherapy conducted by psychologists in private practice to study the impact and interaction of a variety of possible determinants of the process and outcome of psychotherapy. A particular focus will be on the impact of therapist responsiveness. The naturalistic setting of the present study provides an ideal context for research into responsiveness, since a large variation in terms of clients’ mental states and conditions and of treatment approaches is expected. Furthermore, due to the relative freedom of choice of psychotherapeutic methods in the Danish primary sector, therapist responsiveness is not constrained by a treatment manual.

The main research questions of the study are:

- Is psychotherapy provided in the Danish primary sector or in non-reimbursed private practice associated with significant improvement in psychiatric symptoms?
- Is outcome of psychotherapy and client dropout predicted or moderated by psychotherapeutic approach, sociodemographic variables, client personality characteristics, psychologist professional and personality characteristics, and/or client therapy preferences?
- Is the overall flexibility of the psychologists’ therapeutic approach associated with treatment outcome and/or the alliance?
- Is the formation of an attachment-like relationship between clients and therapists associated with better therapy outcome?
- Can we identify clusters of patients with distinctively different patterns of symptom change over the course of psychotherapy and which baseline variables predict such patterns?

Please see online supplemental appendix I for a detailed presentation of the individual substudies, including research questions, hypotheses and study variables.

**METHODS AND ANALYSIS**

**Study design and procedures**

The CROP study is a naturalistic prospective cohort study of therapy outcomes and processes carried out by psychologists in private practice. Self-report data are collected from psychologists and their clients through...
an automated and secure online database. Background data from the psychologists and clients are collected before the first therapy session, and process and outcome data are collected from the clients throughout each therapy course with predefined intervals. At the end of therapy, data are collected from the clients and therapists, and at 3-months follow-up, data are collected from the clients.

All questionnaires are filled in online with links provided through emails to psychologists and through emails or text messages to clients. Reminders are sent automatically in case of no response. Every time a new client has agreed to participate in the study, the psychologist will register the specific client in the system using an anonymous ID and the client will receive an informed consent form to be signed digitally. When the consent form is signed, the client will automatically receive links to the relevant questionnaires. Throughout the therapy course, the clients receive weekly symptom questionnaires and both clients and psychologists receive process questionnaires after every session in a regular pattern where each questionnaire is repeated every third session. When the psychologist registers that the therapy has ended, and at 3-months follow-up, the client will receive the outcome questionnaires. Data are delivered to the research team in a fully anonymised format.

Prior to the implementation of the current design, a pilot study comprising 10 psychologists with one or two clients each was conducted in August 2018. We found that the automatic data collection procedure is working reliably and constitutes a feasible approach to data collection. Data collection for the proper study was initiated in January 2019 and is expected to continue until the end of 2023 pending on the attainment of the target sample size of 573 clients.

Participants

Psychologists

All psychologists with a Danish university degree in psychology who have registered themselves as seeing clients in private practice (approximately 1800) have been invited to participate in the study. Thus, the sample of psychologists consists of psychologists employed in the Danish primary sector, where clients with a referral from their general practitioner obtain a 60% refund of their expenses for psychotherapy as well as psychologists working privately without any reimbursement of their salaries. Each psychologist enrolled in the study has agreed to aim to recruit no fewer than 10 clients each for the study. We aim to include 60 psychologists, which will yield a sample of 600 clients beginning therapy. Psychologists are instructed to include three clients initially and subsequently include a new client whenever ending therapy with a client enrolled in the study. A minimum of 10 clients per therapist increase the possibility of estimating the effect of the therapists in a multilevel model analysis, while asking the therapists to limit the number of concurrent clients helps prevent exhaustion with the study and possible attrition.

Recruitment of psychologists will take place through newsletters and e-mails sent to relevant professional societies. Furthermore, the study will be announced at professional meetings as well as on social media platforms for psychologists in private practice. To motivate psychologists to participate in the study, the psychologists will receive 1000 Danish kroner (~ 135 Euros) per client enrolled in the study. This sum is roughly equivalent to the average salary per hour for a psychologist in private practice and will to some extent compensate the psychologist for the time dedicated to the study. Furthermore, psychologists will be invited to participate in online lectures and seminars focusing on the implications of psychotherapy research for clinical practice and on the findings of the present study.

Clients

All clients in individual psychotherapy aged 18 or older are eligible for the study, meaning that in principle all client diagnoses and referral reasons may be represented in the sample. However, in Denmark, reimbursement for psychological treatment in the primary sector is only provided for clients referred by their general practitioner for 1 of the 11 referral reasons and diagnoses presented below. Thus, clients meeting these characteristics are likely to be over-represented within the sample:

- Victims of robbery, violence and rape
- Victims of traffic and other accidents
- Relatives of seriously mentally ill persons
- Persons suffering from a seriously debilitating illness
- Relatives of persons suffering from a seriously debilitating illness
- Relatives of recently deceased persons
- Persons who have attempted suicide
- Women having undergone an induced abortion after the 12th week of pregnancy
- Persons who, before the age of 18, have been victims of incest or other sexual assaults
- Persons aged 18 or above with mild to moderate depression
- Persons aged 18 or above with mild to moderate anxiety disorder, including mild to moderate OCD
- Persons suffering from a disorder of than 12 sessions. However, the general practitioner is allowed to refer clients diagnosed with depression or anxiety to up to 12 sessions if necessary. Since the study also includes open-ended treatments fully funded by the clients, all treatment lengths will be included in the study.

Measures

All measures listed have been back translated and approved by the original authors unless otherwise noted. See table 1 for an overview of all measures and the time points where they are presented to the participants.
### Table 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Study measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before enrolling first client</td>
<td>DPCCQ, ECR, SASB, ProQOL, IIP, RFQ</td>
</tr>
<tr>
<td>First session</td>
<td>Demographic information, TC, BSI, SCOFF, WHO-5, LPFS-BF, IIP, ECR, RFQ, URICA-S, PEX-P1, PG-13</td>
</tr>
<tr>
<td>Weekly</td>
<td>SCL-11</td>
</tr>
<tr>
<td>Post-session</td>
<td>PEX-T1 (only after first session), WAI-S (after each session), TFRS (every third session), FWC-10 (every third session), RAPIDPractice (every third session), TFS (every third session), PEX-T2 (every third session)</td>
</tr>
<tr>
<td>End of treatment</td>
<td>CSQ, TC, WHO-5, LPFS-BF, IIP, ECR, RFQ, PG-13</td>
</tr>
<tr>
<td>Three months follow-up</td>
<td>TC, BSI, WHO-5, LPFS-BF, IIP, ECR, RFQ, PG-13</td>
</tr>
</tbody>
</table>

### Table 1 Continued

<table>
<thead>
<tr>
<th>Time</th>
<th>Psychologist</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before enrolling first client</td>
<td>BSI, Brief Symptom Inventory; CATS, Client Attachment to Therapist Scale; CSQ, The Client Satisfaction Questionnaire; DPCCQ, Development of Psychotherapist Common Core Questionnaire; ECR, Experiences in Close Relationships; FWC-10, Feeling Word Checklist; IIP, Inventory of Interpersonal Problems; LPFS-BF, Level of Personality Functioning Scale; PEX-P1, Psychotherapy Preferences and Experiences; PEX-T1, therapist version of the PEX; PG-13, Prolonged Grief Disorder scale; ProQOL, Professional Quality of Life scale; RAPIDPractice, Retrospective Analysis of Psychotherapists' Involvement in Deliberate Practice; RFQ, Reflective Function Questionnaire; SAI, Session Alliance Inventory; SASB, Structural Analysis of Social Behavior Introject Surface; SCL-11, Symptom Checklist-11; TC, Target Complaints; TDS, The Therapeutic Distance Scale; TFRS, Therapist Feedback and Reflection Scale; TFS, Therapist Flexibility Scale; URICA-S, University of Rhode Island Change Assessment Scale—Short Version; WAI-S, Working Alliance Inventory-Short Form; WHO-5, The World Health Organisation-Five Well-Being Index.</td>
<td></td>
</tr>
</tbody>
</table>

### Psychologist characteristics

When entering the study, therapists will provide information using the following questionnaires:

- **Development of Psychotherapist Common Core Questionnaire (DPCCQ)** measures the personal and professional characteristics and experiences of psychotherapists and their retrospectively and currently experienced development. Most of the items are designed in a 4-point or 6-point Likert-type format. The scales are internally consistent and adequately differentiated and a degree of construct validity has also been demonstrated. The present study uses an abbreviated version consisting of 138 items.

- **Experiences in Close Relationships-Revised (ECR-R)** is a questionnaire containing 36 items that measure two kinds of attachment insecurity: *Attachment avoidance*, characterised by fear of interpersonal dependence and intimacy, and *Attachment anxiety*, characterised by fear of abandonment and craving for interpersonal closeness. The measure has displayed a clear two-factor structure and provides reliable and replicable measures of both the attachment anxiety and avoidance subscales. The approved Danish translation of the measure has been revised to focus on close relationships in general rather than on a romantic partner.

- **The Structural Analysis of Social Behavior Introject Surface, Intrex (SASB-IS)** is a questionnaire focusing on the individual's way of relating to the self, measured across two dimensions: *Autonomy* (from self-freeing to self-controlling) and *Affiliation* (from friendly to hostile). The short eight-item form is used. Each item is rated two times, representing both the individual's best and worst states. The measure has shown good concurrent and predictive validity as well as strong test–retest reliability in normal and clinical samples.

- **The Professional Quality of Life scale (ProQOL)** is a 30-item questionnaire measuring compassion satisfaction and compassion fatigue. Compassion fatigue consists of...
two sub-scales, one concerning feelings of burnout and one assessing secondary traumatic stress through work-related trauma. The scale has shown good to strong internal reliability and good construct, discriminant and convergent validity.

*Inventory of Interpersonal Problems (IIP-32)* measures difficulties that people experience in their interpersonal relationships, experienced as things people find too hard to do or things they do too much. The IIP has eight sub-scales: hard to be sociable, hard to be assertive, too aggressive, too open, too caring, hard to be supportive, hard to be involved and too dependent. The abbreviated, 32-item version of the IIP is used, which has shown very good internal consistency and functions comparably to the original 127-item IIP.

*Reflective Function Questionnaire (RFQ)-8* measures mentalisation, that is, the capacity to understand both the self and others in terms of internal mental states. The RFQ has two sub-scales, measuring certainty and uncertainty about the mental states of self and others. The measure has shown a distinct and invariant two-factor structure and satisfactory internal consistency and test-retest stability. In the present study, the eight-item version of the scale is used.

**Client characteristics**

Before the first session with the therapist, clients will receive the following questionnaires:

*Demographic information.* This questionnaire consists of 12 items regarding the clients’ gender, age, employment status, education, marital status, children, alcohol consumption and drug use, former mental health problems and current and previous treatment and experiences of any potentially traumatic events.

*Target complaints* (TC) is an individualised measure of psychotherapy outcome, where clients give a qualitative description of their three most important complaints and rate the severity of each on a scale from 1 (‘not at all’) to 12 (‘can’t get worse’). Strong concurrent validity has been demonstrated for the measure with target complaints ratings significantly correlating with anxiety measures, psychological distress, symptom severity and client satisfaction.

*Brief Symptom Inventory (BSI)* is a self-report scale consisting of 53 items covering nine symptom dimensions: Somatisation, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychotism. The symptom dimensions and the global scale (the *Global Severity Index*) of the BSI have shown acceptable to excellent internal consistency and test-retest reliability. Good convergent and construct validity have also been demonstrated.

*SCOFF* is a five-item screening tool addressing core features of anorexia nervosa and bulimia nervosa and designed to clarify suspicion that an eating disorder might exist. An answer of ‘yes’ to two or more questions warrants a more comprehensive assessment. In the present study, the items were presented to the participants in a questionnaire format. A meta-analysis of the diagnostic accuracy of SCOFF show high specificity and sensitivity estimates for the measure.

*The World Health Organisation- Five Well-Being Index (WHO-5)* is a global rating scale that measures subjective psychological well-being. The respondent is asked to rate five positively phrased statements and consider how well they apply when considering the last 14 days. In studies of younger and elderly persons, the WHO-5 has shown good construct validity as a unidimensional scale measuring well-being in these populations.

*Level of Personality Functioning Scale—Brief Form 2.0* (LPFS-BF) is a 12-item questionnaire developed to assess levels of personality functioning. The items are clustered into four subscales, Empathy, Intimacy, Self-Direction and Identity, which are clustered into two higher domains, Self-Functioning and Interpersonal Functioning. A study utilising the Danish version of the measure has demonstrated satisfactory internal consistency, a confirmation of the two-factor other–structure, and promising criterion validity.

*University of Rhode Island Change Assessment Scale—Short Version (URICA-S)* is a 16-item self-report measure based on the trans-theoretical model of change and consisting of four subscales measuring the stages of change: Precontemplation, Contemplation, Action and Maintenance. The measure shows poor to good internal consistency with high correlations to the long version of the scale. Criterion validity has been demonstrated via significant outcome predictions by contemplation, action and maintenance.

*Psychotherapy Preferences and Experiences (PEX)* is a self-report measure designed to be used at various stages of therapy. In the client version of the PEX applied prior to therapy (PEX-P1), the clients are asked to rate the extent to which they believe they would be helped by specific therapeutic interventions and therapist techniques. The version of PEX used in the present study consists of 25 items grouped in five subscales: Inward Orientation (interventions focusing on exploration of inner mental processes), Outward orientation (focusing on concrete and directive problem solving), Affect Expression (focusing on expression of affect), Affect Suppression (focusing on emotional control and avoidance of psychological discomfort) and Support (focusing on active advice, encouragement and sympathy from the therapist). Psychometric properties are satisfactory and the scale has shown high internal consistency.

In addition to these questionnaires, all clients also fill in IIP-32, ECR and RFQ-8 (see *Psychologist characteristics* above).

Clients whose reason for referral is bereavement will also receive the *Prolonged Grief Disorder scale* (PG-13), a 13-item self-report measure designed to assess poor adjustment to bereavement 6 months post-death and beyond. The PG-13 has shown high internal consistency and good concurrent validity in a sample of bereaved parents.
Weekly outcome measures
Starting after the first therapy session, clients will receive the following questionnaire every week:

Symptom Checklist-11 (SCL-11\textsuperscript{45}) is a short, multidimensional outcome measure for the evaluation of psychotherapeutic progress, consisting of 11 items selected from the BSI using a stepwise item-selection procedure where items were selected according to content validity (depression and anxiety diagnostic criteria), convergent validity (correlation with BDI and SCL-90-R), test-retest reliability and change sensitivity.\textsuperscript{34}

Session measures
After each session, clients and therapists fill in a brief alliance inventory along with a supplementary questionnaire. To keep the number of questions after each session to a minimum, the supplementary questionnaire will alternate from session to session, with each questionnaire being repeated every third session (cf. table 1 for details). The specific questionnaires are the following:

**Therapists**

**PEX-T1\textsuperscript{41}** is the 25-item therapist version of the PEX-scale for use before beginning therapy. In the present study, the questionnaire is filled in by the psychologist after the first session with a specific client. In the PEX-T1, the therapist is asked to rate the extent to which they believe their client would be helped by each of the therapeutic interventions and therapist characteristics listed in all versions of the PEX.

Working Alliance Inventory-Short Form (WAI-S\textsuperscript{16}) is a 12-item, self-report measure assessing agreement on the tasks and goals of therapy and development of a positive affective bond between the therapist and the client. The psychometric properties of the short-form measure are reasonably good with especially the total alliance score showing excellent internal consistency.\textsuperscript{47} In the present study, one item is added to ensure overlap of items with the Session Alliance Inventory presented to the client.\textsuperscript{48} The WAI-S is rated by the therapist after each session.

Therapist Feedback and Reflection Scale (TFRS) is an 11-item questionnaire developed for the present study. The therapist is asked to rate the extent to which he/she has received feedback from the client during the session and whether he/she has been surprised by anything in the session or felt in doubt about the therapeutic approach.

**Clients**

Feeling Word Checklist (FWC-BV\textsuperscript{49}) is a 12-item version of a questionnaire used to assess to what degree the therapist has experienced various feelings when interacting with the client in the psychotherapy session. The FWC-BV has shown adequate psychometric properties in a large-scale study of outpatients. In the present study, the 10 items included in the three-factor model found by Breivik and colleagues were used, with two additional items (‘confident’ and ‘indifferent’) added to the measure.

Retrospective Analysis of Psychotherapists’ Involvement in Deliberate Practice (RapidPractice\textsuperscript{30}) is a survey instrument where respondents are asked to rate the frequency with which they have engaged in a number of activities aimed at improving therapeutic skills. An abbreviated, 11-item version was used in the present study.

Therapist Flexibility Scale is a four-item questionnaire developed for this study, focusing on whether the therapist had changed his/her therapeutic approach, focus or understanding prior to or in the latest session with the client.

**PEX-T2\textsuperscript{41}** is the 25-item therapist version of the PEX for use after therapy sessions. The therapist is asked to rate to which extent his/her work with the client was characterised each of the therapeutic interventions and techniques listed in all versions of the PEX.
End-of-treatment measures
At the end of the treatment, therapists fill in items concerning the client’s diagnosis and the therapeutic approach used during the treatment course. Clients rate the baseline measures relevant for treatment outcome, that is, TC, BSI, WHO-5, LPFS, IIP, ECR, RFQ and (if relevant) PG-I3. Furthermore, clients fill in the following questionnaire:

The Client Satisfaction Questionnaire (CSQ)\(^{53}\) is an eight-item form concerning the client’s overall satisfaction with their psychotherapy treatment. The CSQ shows excellent internal consistency and is widely used in mental health service settings.\(^{54}\)

Follow-up measures
Three months after treatment completion, the clients will fill in all end-of-treatment measures again, except the CSQ.

Patient and public involvement
The participating psychologists have continuously provided feedback on the design and procedures of the study. Furthermore, five clients were interviewed about their experience of participating in the study. The interviews were analysed using thematic analysis.\(^{55}\) The overall findings were that the clients were motivated by experiencing that their participation contributed to the improvement of the practice of psychotherapy and that filling in the questionnaires contributed to their reflections on their current state.

Statistical analyses
The primary statistical analyses will consist of multilevel growth curve models, in which predictors and moderators of the level and rate of change in therapy outcomes are tested over time, or structural equation modelling (SEM) approaches to investigate change during the psychotherapy process. In substudy A, we study the outcome of psychotherapy, testing various shapes of change in a preliminary step and subsequently investigating how client variables (eg, therapeutic preferences or personality pathology) interact with therapist variables (eg, therapeutic approach) in predicting therapy outcome (eg, dropout and symptom change). In substudy B, we investigate session-to-session changes in the client’s treatment preferences and the therapist’s treatment approach using panel data modelling in the SEM framework. In substudy C, we explore client attachment variables in the therapy process, for example, the interaction between pretreatment attachment style, the client–therapist attachment relationship and the outcome of therapy. Detailed descriptions of these and other substudies, including statistical analyses and research aims, are found in online supplemental appendix 1.

Due to the complexity of power analysis for multilevel models, we used a simplified power analysis based on multiple regression. The overall sample size of the study was set to obtain sufficient statistical power to detect small effect sizes in multiple regression analyses. Sample size was calculated in G*Power V.3.1. To detect what has been designated by Cohen\(^{56}\) as a small effect size (\(f^2=0.02\)) of the predictor variables, with a power of 90% and an \(\alpha\)-level of 5%, 430 participants are needed. Allowing for a dropout rate of 25%, the sample size needed for the study is 573 participants. Missing data will be dealt with using multiple imputation\(^{57}\) based on all available client and therapist measures.

Ethics and dissemination
All data are fully anonymised and stored in agreement with the Danish Act on Processing of Personal Data. All parts of the study are based on the principles of informed consent and clients are informed that they can terminate their participation in the study at any time without consequences to their treatment. The study design and data management procedure have been approved by the Ethical Review Board at the Department of Psychology, University of Copenhagen (IRB number: IP-IRB/01082018) and the Danish Data Protection Agency. The findings of the study will be presented in articles in international, peer-reviewed journals as well as to psychotherapy practitioners and other professionals across Denmark.

Acknowledgements The authors thank all the clients and psychologists providing data to the study, Katrine Søndergaard for analysing interviews with clients in the study, and Erminio Spadaro and Mads Dahlgaard for their help with recruitment and general assistance.

Contributors The study was designed by SP, LRL, JN, SL and BBM. This protocol was primarily formulated by LRL, SP and CFJ. FF provided statistical advice and all authors revised and approved the final version of the manuscript.

Funding The study is supported by the Health Foundation under grant number 16-B-0269, the Danish Psychological Association (grant number not provided), the Tryg Foundation under grant number 148569 and the Research Council of the Danish Practice Sector (grant number not provided).

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Once the results of the study have been published, anonymised datasets can be provided upon request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iDs
Celia Faye Jacobsen http://orcid.org/0000-0001-7221-0427
REFERENCES


