ORIGINAL ARTICLE

Tracing Metacognition in Psychotherapy

Associations With Symptoms of General Distress and Depression

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Abstract: Deficits in metacognition have often been identified as a central feature in various forms of psychopathology. The current study explores changes in metacognition and symptoms during the process of psychodynamic-oriented psychotherapy conducted in a community setting among people with diverse psychological challenges. We examined the associations between metacognition and symptoms at both the within-client and the between-clients level. Nine good-outcome and nine poor-outcome cases of psychodynamic treatment were analyzed. In terms of metacognitive abilities, results showed that clients who were part of the good-outcome group had higher levels of decentration than did clients who were part of the poor-outcome group. In addition, clients' ability to understand the other's mind improved significantly only for clients in the good-outcome group. Furthermore, sessions in which clients' self-reflectivity was higher were followed by increased symptom levels (in the next session) beyond group (poor or good outcome group). Clinical implications regarding the improvement of metacognitive abilities and their associations with outcome measures are discussed.

Key Words: Metacognition, community clinic, psychotherapy,
within-client and between-clients effects

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Research over the past decade has suggested that the outcomes of psychotherapy may in part be the result of the positive effects of psychotherapy on the related concepts of metacognition and mentalization (Bateman and Fonagy, 2001; Dimaggio et al., 2007; Liotti and Gilbert, 2011; Lysaker et al., 2018; Philipp et al., 2018). Metacognition and mentalization refer to the abilities that allow persons to form the kinds of complex and flexible ideas about the self and others needed to decide how to respond to emergent psychosocial challenges. Traditionally defined as "knowledge and cognition about cognitive phenomena" (Flavell, 1979), the concept of metacognition, which was the focus of the current study, has recently been conceptualized as including a spectrum of activities ranging from those that allow for an awareness of discrete experiences) *e.g.*, noticing a specific thought or emotion) to those that support the synthesis of those experiences into more complex and integrated senses of self and others (*e.g.*, the formation of these distinct thoughts into complex representations of oneself or others). Metacognition differs primarily from the concept of mentalization, in which it allows deficits in metacognitive abilities to occur outside of attachment contexts.

Metacognitive abilities are considered as foundational for successful human adaptation as they allow for access to, and reflection upon, first-person experience in a holistic and fluid manner that is responsive to the moment (Lysaker et al., 2013; Lysaker and Dimaggio, 2014; Lysaker and Hasson-Ohayon, 2014). Improving metacognitive ability through psychotherapy might thus be expected to have a generally positive effect upon outcome as it could on its own lead to improvements in the ability to understand and manage distress. Evidence of the importance of metacognition for psychological health has been found in many studies linking metacognitive deficits with poorer outcomes. For example, in a recent meta-analysis, decrements in metacognition have been found to be related to both psychosocial functioning as well as severity of psychopathology among people with schizophrenia (Arnon-Ribenfeld et al., 2017). Metacognitive deficits have also been found to be related to self-blame and distress among people with post-traumatic stress disorder (Davis et al., 2016; Lysaker et al., 2015) and to poor social cognition among people with depression (Ladegaard et al., 2014a; Ladegaard et al., 2014b). Concerning persons with no diagnosis of mental illness, metacognition was found to be related to social quality of life (Hasson-Ohayon et al., 2015) and to caregiver burden among people caring for an adult with mental illness (Jansen et al., 2014).

Importantly, different approaches to psychotherapy have offered different models of how psychotherapy might positively affect metacognitive capacity. These intervention models can be divided into the following: cognitive behavioral therapy–oriented interventions (*e.g.*, social cognition and interaction training, Combs et al., 2007; metacognitive therapy, Moritz et al., 2010); psychodynamic-oriented interventions (*e.g.*, mentalization-based treatment [MBT], Fonagy and Bateman, 2006); and integrative-oriented interventions (*e.g.*, metacognitive reflection and insight therapy [MERIT], Lysaker and Klion, 2017; and metacognitive interpersonal therapy [MIT], Dimaggio et al., 2007).

To date, however, evidence that metacognitive abilities may improve across psychotherapy has appeared in multiple case studies targeting a different kind of psychopathology (Arnon-Ribenfeld et al., 2018; Dimaggio et al., 2007, 2014, 2017; Hamm and Firmin, 2016; Hamm and Leonhardt, 2016; Hillis et al., 2015; Lysaker et al., 2007; Semerari et al., 2003, 2005). MERIT has been linked to increases in metacognitive abilities in schizophrenia (Arnon-Ribenfeld et al., 2018; Buck and Lysaker, 2009; Hillis et al., 2015), and MIT has been linked to positive improvements in metacognition among people with personality disorders (Dimaggio et al., 2014, 2017; Fiore et al., 2008). Moreover, a recent review (Vogt and Norman, 2018) argued that among people with borderline personality disorder, MBT is effective in reducing symptom severity.

Beyond these case reports, two randomized controlled trials have found psychotherapy linked to improvements in metacognition. de Jong et al. (2018) found metacognitive capacities among people with schizophrenia improved after treatment, whereas Vohs et al. (2018) found insight improved among persons with early-phase psychosis. Considering persons with conditions beyond schizophrenia and personality disorder, Fonagy and colleagues have argued that deficits in mentalization could be seen as transdiagnostic, with these deficits generating symptoms that are characteristic of a wide range of disorders (Fonagy et al., 2011). Accordingly, psychotherapy that targets these deficits could be adapted for other populations with other specific diagnoses (*i.e.*, people with

eating disorders, antisocial personality disorder, and substance abuse) as well as for family, adolescent, and school interventions (Asen and Fonagy, 2011; Bateman and Fonagy, 2011; Twemlow et al., 2005). Indeed, a recent review found interventions that target metacognitive function effective in reducing symptom severity among people with obsessive-compulsive disorder, depression, posttraumatic stress disorder, and anxiety (Philipp et al., 2018).

Although this literature suggests that improvements in metacognition may be linked to better outcomes, there are several limitations. First, improvements in metacognition or mentalization have been studied by comparing study participants and controls. Although this approach allows for the establishment of the efficacy of different treatments, in recent years, it has been argued that it is also important to study change made by individual clients, that is, comparisons between the same clients, at several time points throughout psychotherapy. It has been argued that this approach is needed to identify mechanisms of change in psychotherapy (*e.g.*, Rubel et al., 2018). This may be especially important for the study of metacognition as changes in metacognitive abilities have been reported to be nonlinear (Buck and Lysaker, 2009).

A second limitation is that the majority of studies assessing metacognitive abilities during the course of an individual's psychotherapeutic process have used protocols that were developed to enhance these abilities. Thus, we do not know much about how other approaches might impact metacognition. Third, as already noted, most studies have focused on clients with complex and more severe mental illness. Thus less is known about the course of change in metacognition among clients with diverse psychological challenges, mostly mild to moderate depression and anxiety. Although the internal validity of studies with homogeneous clients is recognized, naturalistic studies are considered to have better external validity and reflect more accurately the reality of clinical work in public clinics (Morrison et al., 2003).

To address these limitations, the current study aimed to identify changes in metacognition and symptoms throughout the participants' course of psychodynamic-oriented psychotherapy conducted in a community setting. Metacognitive abilities were assessed at multiple time points throughout their psychotherapy, enabling an examination of these associations on the within-client level. In addition, we wished to assess whether changes in metacognition were related to psychotherapy outcome, and therefore divided our sample into cases according to outcome, that is, good-outcome cases and poor-outcome cases, enabling a between-clients level analysis as well. Accordingly, metacognitive ratings for 90 individual psychodynamic psychotherapy sessions were collected from a total of 18 clients, who were divided into good and poor cases according to their outcome. Of note, we planned to consider different facets of metacognition separately given research suggesting that the rates of improvements in different metacognitive domains may differ from one another. For example, de Jong et al. (2016) reported that initially clients showed improvement in self-reflectivity and mastery, but only later did improvement in other subscales (understanding the other's mind and decentration) occur. Lysaker et al. (2007) reported similar results, in which improvement in self-reflectivity preceded improvement in understanding the other's mind.

We hypothesized the following: 1) on the between-clients level, clients in the good-outcome group would show more improvement in metacognition than clients who were in the poor-outcome group; and 2) on the within-client level, changes in metacognition would be associated with better outcomes.

METHOD

Study Design

The current study was part of a large outcome study of psychotherapy in a community university clinic. The study procedures were part of the routine battery used in the clinic for both clinical and research

purposes. Clients were selected for the current study from a sample of 101 clients who were admitted for treatments in the clinic in 2014. All clients were older than 18 years (M_{age} = 39.84 years, SD = 14.34), and the majority were female (62.4%). Of the 87 clients who provided demographic information, 44.6% were single or divorced and 42.5% were married or in a permanent relationship. In terms of education, half of them had at least a bachelor's degree and 76.3% were fully or partially employed.

Diagnoses were classified as Axis I disorders as described in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (American Psychiatric Association, 2000). The clinician conducting the intake was not the one who provided the treatment. Most clients were diagnosed as suffering from affective disorder (44.6%) or anxiety disorder (27.7%) as the primary diagnosis. Additional primary diagnoses were obsessive-compulsive disorder (4%), learning disability (2%), or others (2%). Twenty percent of the clients reported experiencing relationship problems, academic/occupational stress, or other problems but did not meet the criteria for Axis I diagnosis. According to pretreatment assessments, the mean Global Assessment of Functioning (GAF) score for the sample was 65.5 (SD = 10.9; range, 41–90). A total of 84 clients completed the Beck Depression Inventory (BDI-II; Beck et al., 1996) before treatment, and the mean score for the sample was 17.88 (SD = 9.56).

Clients were selected according to five criteria: 1) age range of 25 to 70 years; 2) psychodynamic-oriented treatment; 3) treatment length of 15 sessions at a minimum; 4) BDI-II score between 17 and 40 on the pretreatment assessment, indicating mild to severe depression; and 5) having available, for each client who completed the treatment, full data, including audiorecordings of all sessions and pre-post measurements. Clients with severe mental illnesses were excluded (*i.e.*, posttraumatic stress disorder, psychotic or manic past or present diagnosis, and/or current substance abuse, based on the M.I.N.I. 6.0 (Sheehan et al., 1998). This procedure resulted in 60 clients from whom 18 were selected through the formation of the comparison groups (detailed below).

Treatment and Session Selection

The selection of treatments, as well as the selection of sessions from each treatment, was done according to the following process. First, because the majority of clients were diagnosed with affective disorders, the BDI was chosen as the comparison criteria (as well as the exclusion criterion detailed previously). Once the treatment was complete, the reliable change index (RCI) of pre-post change on the BDI was computed, categorizing all clients into two subgroups: those who scored above versus those who scored below the RCI cutoff of 8.46. This method is commonly used in psychotherapy research (Seggar et al., 2002) and was used here to divide the sample posterior into two extreme subgroups: good-outcome cases ($n = 9$) and poor-outcome cases ($n = 9$). This type of design sharpens the differences between the good- and poor-outcome psychodynamic-oriented treatments.

For the selected clients, the mean score for the BDI before treatment was 25.16 (SD = 6.55), indicating mild to moderate depressive symptoms. Clients that were part of the good-outcome group met the threshold for clinically significant and reliable change (Seggar et al., 2002); their BDI scores dropped from between 17 and 40 at screening assessment (M = 25.44, SD = 8.12) to 2 to 21 posttreatment (M = 13.22, SD = 8.45). Clients that were part of the poor-outcome group showed reliable change; their BDI scores showed little or no reduction, ranging from 17 to 40 at screening (M = 25, SD = 6.22) and from 17 to 45 at posttreatment (M = 29.22, SD = 11.07). The difference between the pretreatment and posttreatment BDI of the good- and poor-outcome groups was significant (−11.77, SD = 4.08 and 3.77, SD = 7.31, respectively). Significant differences in the change score from pretherapy to posttherapy between the groups was found in other

measures, which reinforced the divisions between these groups: on the Outcome Questionnaire–Self-Report (OQ-45) that measured well-being (Lambert et al., 1996) (OQ-45; M_{poor} = 7.0, SD_{poor} = 14.7; M_{good} = −14.6, SD_{good} = 14.2; $t(16)$ = −3.15, p = 0.006); and on the Inventory of Interpersonal Problems (IIP) Personality Questionnaire (Horowitz et al., 1988) (IIP; M_{poor} = −0.3, SD_{poor} = 0.6; M_{good} = −1.0, SD_{good} = 0.6; $t(16)$ = −2.44, p = 0.02).

After composing two extreme groups, five sessions were chosen from each treatment in even intervals based on the total number of sessions a client had attended. Intervals varied from 2 to 3 sessions in the shortest treatment, which comprised 15 sessions, to 9 to 10 sessions in the longest treatment, which comprised 40 sessions. The average interval was a spacing of five sessions. These sessions were coded for the Metacognition Assessment Scale–Abbreviated (MAS-A; Lysaker et al., 2005). Next, one session was chosen randomly from each treatment for the purpose of the MAS-A interrater reliability analyses. After initial analyses of reliability scores and the observed low variance in one of the MAS-A subscales ("decentration"), six more sessions were chosen for the metacognition reliability analysis process.

Participants

Clients

The participants were 18 adults—12 women and 6 men ranging in age from 25 to 70 years (M = 42.66, SD = 13.71). Eight of them were single or divorced, and 10 were married or in a long-term relationship. In terms of education, half of them had, at a minimum, a bachelor's degree, and 15 clients were fully or partially employed. In addition, only three clients had been in psychological treatment before. For their primary diagnosis, 10 clients were diagnosed as suffering from affective disorders and three from anxiety disorders. The rest of the clients reported experiencing relationship problems, academic/occupational stress, or other types of problems, but they did not meet the criteria for an Axis I diagnosis. According to pretreatment assessments, the mean GAF score for the sample was 69.61 (SD = 11.34; range, 55–90). BDI mean score before treatment was 25.16 (SD = 6.55), indicating mild to moderate depressive symptoms.

Therapists

Sixteen therapists (13 women and 3 men) participated in the study. Every therapist treated one client, except for two therapists who treated two clients each. The clients were assigned to therapists in an ecologically valid manner based on real-world issues such as therapist availability and caseload. The therapists were masters or doctoral student trainees in the university's psychology department training program. All therapists received diverse courses in psychodynamic psychotherapy, 1 hour of individual supervision and 4 hours of group supervision per week. The supervision was conducted by senior clinicians who practice psychodynamic psychotherapy. All therapy sessions were audiotaped for supervision and research purposes, and treatment vignettes were structured to provide specific and direct feedback to supervisees. At the time of treatment, the therapists were unfamiliar with the research scales and hypotheses.

Treatments

Treatment was conducted in a community university clinic, which is subject to an academic schedule. Sessions of psychodynamic psychotherapy were organized, aided, and informed by a short-term psychodynamic psychotherapy treatment model (Blagys and Hilsenroth, 2000; Summers and Barber, 2012). The key features of this model include the following: 1) focus on affect and the experience and expression of emotions; 2) exploration of attempts to avoid distressing thoughts and feelings; 3) identification of recurring themes and patterns; 4) emphasis on past experiences; 5) focus on interpersonal experiences; 6) emphasis

on the therapeutic relationship; and 7) exploration of wishes, dreams, or fantasies (Shedler, 2010). Clients were seen once a week for 50 minutes. Treatment was limited to 10 months. The mean treatment length was 26.61 sessions (SD = 6.47; range, 15–43).

Measures

Measures at Pretreatment and Posttreatment

The BDI-II (Beck et al., 1996) is a 21-item self-report measure of depression that asks respondents to rate the severity of their depressive symptoms during the previous 2 weeks using a variable Likert scale (*i.e.*, 19 items use a four-point scale, and two items use a seven-point scale). Individual item scores are summed to create a total severity score with a range of 0 to 63. Total scores can be used to categorize respondents by severity of depression using the following ranges: 0 to 13 (minimal); 14 to 19 (mild); 20 to 28 (moderate); greater than 28 (severe) (Beck et al., 1996). Analyses have revealed high internal consistency (α = 0.93) and significant (p < 0.01) intercorrelations between the BDI-II total scale and the Behavior and Symptom Identification Scale–24's Depression/Functioning (r = 0.79) and Overall (r = 0.82) subscales (Subica et al., 2014). This measure showed good internal consistency in the original sample of 101 participants (α = 0.91).

Measures on a Session by Session Basis

The Hopkins Symptom Checklist (HSCL-11; Lutz et al., 2006) is an 11-item self-report inventory assessing symptomatic distress. It is a brief version of the Revised Symptom Checklist (SCL-90-R; Derogatis, 1992). The items are based on a four-point Likert scale ranging from 1 (not at all) to 4 (extremely). The mean of the 11 items represents the client's level of global symptomatic distress during the preceding week. The HSCL-11 is highly correlated (r = 0.91) with the brief symptom inventory, which assesses symptom severity (Franke, 2000; German translation of Derogatis, 1975), and has high internal consistency (α = 0.92; Lutz et al., 2006). The within-subject and between-subject reliabilities for the scale were computed using procedures outlined by Cranford et al. (2006) and were considered high in the current study (within, 0.84; between, 0.82). The MAS-A (Lysaker et al., 2005) is a system for assessing metacognition on the basis of a number of different types of transcripts or data sources. This evaluation is conducted by quantifying the frequency and level of detail in spontaneous speech with regard to the person's thoughts and feelings about the self and others, and traces the ability to produce a rich and integrative narrative of the self and others. The assessment is divided into four scales: "self-reflectivity," "understanding the other's mind," "decentration," and "mastery."

The MAS-A is based on the integrative model of metacognition that operationalizes the metacognitive processes of self-reflectivity, awareness of the other, and mastery as a series of hierarchical steps, each of which calls for metacognitive acts that are more complex than the step beneath it but also require the successful function of the step beneath it (Lysaker et al., 2018). Higher scores on each subscale of the MAS-A thus reflect higher metacognitive abilities. For example, higher scores on the "self-reflectivity" subscale reflect the ability to form a more complex representation of oneself, whereas high scores on "mastery" reflect the ability to employ greater levels of metacognitive capacity when responding to stressors. Interrater reliability in previous cross-sectional studies with clinical populations has ranged from 0.71 to 0.95 (Hamm et al., 2012; Rabin et al., 2014; Vohs et al., 2014). Concerning validity, MAS-A has been linked to varied outcome measures such as preferences for active coping, cognitive insight, and awareness of illness (Lysaker et al., 2005, 2008, 2010, 2011). Two raters conducted ratings using the MAS-A. Good overall reliability was found with correlations ranging from 0.73 to 0.94.

Training Raters in Coding the MAS-A

Two independent raters encoded the MAS-A. The raters were PhD students in the clinical programs at the university. Both raters had undergone intensive training that consisted of reading a training manual and establishing initial ranks with consensus rating for 12 therapy sessions before they began to rate these study sessions. Two-hour meetings, every other week, over a period of 8 weeks were held to discuss session transcripts until agreement was reached on all four subscales of the MAS-A.

Procedure

All clients and therapists were asked to sign consent forms if they agreed to participate in the voluntary study, and they were told that they could choose to terminate their participation in the study at any time without jeopardizing the treatment. Clients and therapists were also told that their anonymity would be preserved and that data from the client would not be transferred to the therapist. Clients were asked to complete the BDI-II questionnaires, both pretreatment and posttreatment, and the HSCL-11 before each therapeutic session. For every dyad, five sessions representing five phases were chosen. All 90 sessions were audiotaped, transcribed, and then coded by the MAS-A. The raters were blind to the treatment outcome at the time of the rated session.

Analytic Strategy

To examine changes in metacognition throughout sessions (*i.e.*, whether the good-outcome cases group would show more improvement in metacognition than the poor-outcome cases group), we used a mixed 2×5 (group $\times$ time) two-way analysis of variance (ANOVA) with group as the between-subject factor and time as the within-subject factor for each of the MAS-A subscales. Given the nested structure of the data, individual observations (sessions) are not independent of one another. For this reason, hierarchical data violate the assumption of independent observations made by traditional statistical methods. Multilevel modeling (MLM) offers a powerful statistical method for handling this type of data (Hox, 2010).

To examine changes in metacognition throughout treatments on a session-by-session basis (*i.e.*, to examine the associations between session-level MAS-A subscales and session-level symptoms), a two-level MLM was used, partitioning the total variability in symptom ratings of time (*t*) of client (*c*) into two components: within-client variability at level 1 and between-clients variability at level 2. The predictors (*i.e.*, the MAS-A subscales) were person-mean centered, which allowed us to examine directly the associations at the within-client level (*i.e.*, whether in sessions in which the MAS-A was higher, relative to the client's own average level, the symptom level was changed). To test which group moderated these associations, we tested the interaction with Group (effect coded: Group = 0.5 for good-outcome cases group, Group = −0.5 for poor-outcome cases group). Finally, to control for previous level of symptoms and the linear effect of time, we entered lagged symptom level and Time (centered on the third session) as a covariate in the model (Curran and Bauer, 2011; Wang and Maxwell, 2015).

RESULTS

Descriptive Statistics of the MAS-A and Interrater Reliabilities

Descriptive statistics of the MAS-A subscales are presented in Table 1. As can be seen in this table, moderate metacognitive abilities were measured across 90 therapy sessions. The range of each subscale is rather wide because each one measured metacognitive abilities at five points throughout the psychotherapeutic treatment and included both good and poor outcome cases.

TABLE 1. Means, SDs, Range, and Mode of MAS-A Subscales

	Mean	SD	Range	Mode
Self	4.67	0.85	2–7	4 (46%)
Other	3.55	0.89	1–5	4 (37%)
Decentration	1.38	0.49	0.50–2.50	1 (57%)
Mastery	3.21	1.32	0–6	2 (35%)

Self indicates self-reflectivity; Other, understanding other's mind.

MAS-A Subscales and Outcome: Between-Clients and Within-Client Comparisons

To examine whether the good-outcome cases group would show more improvement in metacognition than the poor-outcome cases group, we ran a mixed 2×5 (group $\times$ time) two-way ANOVA with group as the between-subject factor and time as the within-subject factor for each of the MAS-A subscales. Figure 1 presents the scores for each of the subscales, separately for the good-outcome cases and poor-outcome cases groups. Table 2 shows the results of these analyses. As the table shows, the analysis regarding the MAS-A "self-reflectivity" subscale as the dependent variable yielded no main effects for time or group and no interaction effect. The analysis regarding the MAS-A "understanding the other's mind" subscale as the dependent variable yielded no main effects for time or group but did yield a significant interaction effect. To explore this interaction, for each group we ran a separate paired *t*-test examining the difference between the first and the last assessment point; although the difference between these two assessments (M = 3.38, SD = 0.92; M = 4.11, SD = 0.78) approached significance in the good-outcome cases group, it was not significant in the poor-outcome cases group.

The analysis regarding the MAS-A "decentration" subscale as the dependent variable yielded no main effects for time but a significant effect for group, which did not interact with time. As the figure shows, across assessments, on average the good-outcome group had higher (M = 1.55, SD = 0.52) "decentration" levels than the poor-outcome group. As the table shows, the analysis regarding the MAS-A "mastery" subscale as the dependent variable yielded no main effects for time or group and no interaction effect.

MAS-A Subscales and Change in Session-Level Symptoms

To examine whether there were associations between session-level MAS-A subscales and session-level symptoms, we used a two-level MLM, partitioning the total variability in symptom ratings of time (*t*) of client (*c*) into two components: within-client variability at level 1 and between-clients variability at level 2. The predictors (*i.e.*, the MAS-A subscales) were person-mean centered, which allowed us to examine directly the associations at the within-client level (*i.e.*, whether in sessions in which the MAS-A was higher, relative to the client's own average level, the symptom level was changed). To test which group moderated these associations, we tested the interaction with Group (effect coded: Group = 0.5 for good-outcome cases group, Group = −0.5 for poor-outcome cases group). Finally, to control for previous level of symptoms and the linear effect of time, we entered lagged symptom level and Time (centered on the third session) as a covariate in the model (Curran and Bauer, 2011; Wang and Maxwell, 2015). Thus, the mixed multilevel equation, in which the intercept was considered to be random, was:

$$\text{Symptoms}_{t+1,c} =$$

$$(\gamma_{00} + \gamma_{01} \times \text{Group}_c + u_{0c}) + (\gamma_{10} + \gamma_{11} \times \text{Group}_c) \times \text{MAS-A-S}_{ct} +$$
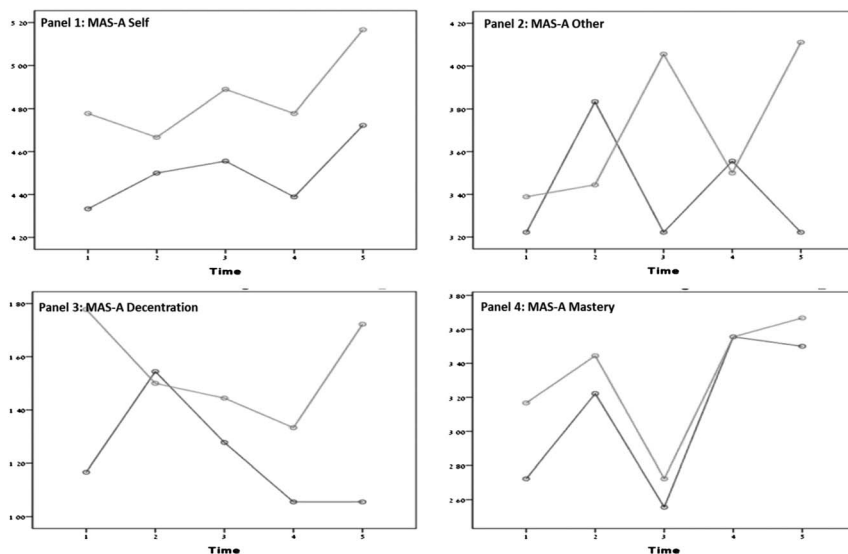
FIGURE 1. Scores of the MAS-A subscales, separately for the good-outcome and poor-outcome groups.

$$\left(\gamma_{20} + \gamma_{21} \times \text{Group}_c\right) \times \text{MAS-A-O}_{ct} + \left(\gamma_{30} + \gamma_{31} \times \text{Group}_c\right)$$
$$\times \text{MAS-A-D}_{ct} +$$

$$\left(\gamma_{40} + \gamma_{41} \times \text{Group}_c\right) \times \text{MAS-A-M}_{ct} + \left(\gamma_{50}\right) \times \text{Symptoms}_{tc} + \left(\gamma_{60}\right)$$
$$\times \text{Time}_{tc} + e_{tc};$$

Where the symptom level in session $t + 1$ of client c is predicted by the sample's intercept (*i.e.*, fixed effect; γ_{00}), the clients' group deviation from the intercept (*i.e.*, γ_{01}), and this client's specific deviation from the predicted intercept by these two fixed effects (*i.e.*, random effect; u_{0c}); this session's four MAS-A subscales multiplied by the sample's effects of these subscales (*i.e.*, γ_{10}, γ_{20}, γ_{30}, γ_{40}), and the clients' group deviation from these effects (*i.e.*, γ_{11}, γ_{21}, γ_{31}, γ_{41}); and finally, by this session's two covariates (session t symptom level [*i.e.*, γ_{50}], and the linear effect of time [*i.e.*, γ_{60}], and by a level 1 residual (e_{ct}) (quantifying this session's deviation from all the previous effects). As none of the effects of the MAS-A subscales was found to be moderated by Group, we report below the results of a reduced model in which the group effects (*i.e.*, γ_{01}, γ_{11}, γ_{21}, γ_{31}, γ_{41}) were omitted.

The results of the fixed effects part of this model are presented in Table 3. As the table shows, we found that the MAS-A "self-reflectivity" subscale was positively associated with next session symptom levels. Accordingly, sessions in which self-reflectivity levels were higher (relative to the client's own average level) were followed by increased symptom levels in the next session. None of the other three MAS-A subscales were associated with next session symptom levels.

DISCUSSION

The current study examined changes in metacognitive abilities and symptoms during the course of clients' processes of psychodynamic-oriented psychotherapy conducted in a community setting. Assessments were done at multiple time points throughout clients' psychotherapy treatment to examine whether, 1) on the between-clients level, clients in the good-outcome group would show more improvement in meta-cognition than clients who were in the poor-outcome group, and 2) on the within-client level, changes in metacognition would be associated with better outcomes. Examining between-client differences, we found that clients who were part of the good-outcome group had higher levels of decentration than clients who were part of the poor-outcome group. On the within-client level, we found that clients' abilities to understand the other's mind improved significantly only for clients in the good-outcome cases group. In addition, we found that sessions in which self-reflectivity levels were higher (relative to the client's own average level) were followed by increased symptom levels (in the next session).

These findings are consistent with studies that showed there is a nonlinear improvement in metacognition and that different metacognitive abilities are expected to improve at different time points (de Jong et al., 2016; Lysaker et al., 2007). Although Lysaker et al. (2007) showed that improvement in self-reflectivity preceded improvement in understanding

TABLE 2. MAS-A Subscale Scores, for the Good-Outcome and Poor-Outcome Groups

	MAS-A Subscales											
	Self			**Other**			**Decentration**			**Mastery**		
Effect	$F_{(4,64)}$	η^2	p	$F_{(4,64)}$	η^2	P	$F_{(4,64)}$	η^2	p	$F_{(4,64)}$	η^2	P
Group	1.65	0.09	0.22	1.00	0.06	0.33	11.86	0.43	0.003	0.43	0.03	0.52
Time	0.92	0.06	0.46	0.82	0.05	0.51	1.385	0.08	0.25	1.76	0.10	0.15
Group × time	0.12	0.01	0.98	2.850	0.15	0.03	1.98	0.11	0.10	0.07	0.00	1.00

Self indicates self-reflectivity; Other, understanding other's mind.

TABLE 3. Fixed Effects of Session-Level MAS-A Subscales and Session-Level Symptoms

	Estimate (SE)	*t*	*df*	*p*
Intercept	0.50 (0.16)	3.09	17	0.0066
Self	0.13 (0.07)	2.06*	64	0.0436
Other	0.04 (0.06)	0.61	64	0.5461
Decentration	0.04 (0.09)	0.42	64	0.6763
Mastery	−0.03 (0.03)	−0.99	64	0.3251
Symptoms	0.72 (0.08)	9.43	64	<0.0001
Time	0.02 (0.03)	0.68	64	0.4991

Self indicates self-reflectivity; Other, understanding other's mind; Symptoms, assessed with the Hopkins Symptom Checklist.

the other's mind, in the current study, the self-reflectivity levels did not seem to improve, although improvement in understanding the other's mind subscale was evident. A possible explanation is that the clients exhibited higher initial self-reflectivity levels in the current sample, in comparison to other samples of people with more severe diagnoses (de Jong et al., 2016; Lysaker et al., 2007). These higher pretreatment levels of self-reflectivity might have enabled the improvement in the understanding the other's mind subscale. Dimaggio et al. (2008) argue that the more clients are able to reflect on their own lives, the more they can recognize others' thoughts and emotions. Taken together, it seems that an initial level of self-reflectivity is needed to understand others. Notably, this change occurred only for clients who were part of the good-outcome cases.

Pretreatment metacognitive levels could also reflect the diagnostic sample, as clients who were part of the good-outcome group had higher levels of decentration than clients who were part of the poor-outcome group. Similar findings that differentiate between diagnostic groups, based on the decentration subscale, were found in Lysaker et al. (2017), which compared metacognitive functioning among people with different mental disorders and found that people with different diagnoses have different deficits in these abilities.

Regarding the positive association between self-reflectivity and next session symptom levels, it seems that awareness of oneself can be painful, as expressed by increased symptoms. Lysaker et al. (2005) found similar results and suggested that greater awareness of one's own feelings and thoughts is accompanied by greater pain. Similarly, Hasson-Ohayon et al. (2015) showed a negative association between self-reflectivity and social quality of life. A further understanding of these links throughout the psychotherapeutic process can help direct the therapist in moderating this association, enabling the individual's self-awareness to produce a better outcome via possible mechanisms of emotion regulation and mastery. Interestingly, it might be that this increase in symptoms is a temporary stage in psychotherapy when people come into contact with their inner conflicts and needs. Psychodynamic psychotherapy may also have a delayed effect, as clients may continue to improve even after treatment ends (Shedler, 2010). This should be examined in future studies exploring the association between metacognitive abilities and change in symptoms while using follow-up assessments.

To conclude, the current study explored changes in metacognitive abilities and symptoms throughout individuals' processes of psychodynamic-oriented psychotherapy in a community setting. Examining both within-client and between-clients effects, we found that, similar to studies of other treatments with other kinds of clients, psychodynamic therapy may lead to better outcomes via improvements in metacognition. This may suggest that indeed different forms of psychotherapy affect outcome through similar mechanisms.

With replication, results may have several clinical implications. For one, it may be important for therapists to be aware that enhanced reflectivity may bring emotional distress. It may be prudent for therapists, for example, to be aware of and assess potential elevations in emotional distress after clients have come to a more complex idea about themselves and others. In addition, the current results may suggest that decentration, the ability to recognize other points of view and that events in the world are occurring without relation to oneself, is an important element in psychotherapy. It may be important that therapists emphasize this ability, which may tend to be neglected. Therapists should be attentive to the ability of the client to recognize different points of view and that events in the world can be viewed from more than one legitimate position. Future studies should explore other therapeutic elements that might be more effective for the poor-outcome group. Of note, results do point to the use of metacognitive assessment in routine clinical community settings as a feasible way to trace progress and provide therapists with feedback on their clients' reflective abilities.

With these conclusions in mind, a few limitations should be noted. This study was designed as a naturalistic field study of clients with comorbid diagnoses undergoing psychodynamic psychotherapy without conducting adherence tests. Although this type of design is inherently limited in its internal validity, it benefits from substantial external validity as it more accurately reflects the reality of clinical work with clients in public clinics (Levy and Ablon, 2009). In addition, its small sample size might limit the study's generalizability, and replication is needed via a larger sample in a nonuniversity clinic with diverse populations. Another limitation stems from the sampling process. As noted previously, our sample was divided into two groups according to therapy outcome based on the BDI results (*i.e.*, good-outcome and poor-outcome cases). This partition of the comparison groups may have led to a loss of variance. In addition, therapy length ranged from 15 to 43 sessions in the current study. It might be that a longer period of therapy is needed to detect change among a group of clients who demonstrated a poor outcome in the current study. Future studies should examine the association between metacognitive abilities and change in symptoms while using follow-up assessments. In addition, future studies may also examine the extent to which the therapeutic processes employed in more formal metacognitively oriented therapies, such as MERIT (Lysaker and Klion, 2017) or MIT (Dimaggio et al., 2007), are at play in dynamic psychotherapy.

DISCLOSURES

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