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Assessing Mentalization: Development and Preliminary Validation of the Modes of Mentalization Scale

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The aim of this study was to provide data on the preliminary validation of a new clinician-report measure of mentalizing modalities, the Modes of Mentalization Scale (MMS), and to test its construct validity by using the MMS to investigate the relationship between mentalization and clinical variables, personality pathology, and attachment style. A random sample of 190 therapists rated an adult patient with no psychotic symptoms in the last 6 months using the MMS, the Clinical Questionnaire, a checklist of personality disorders (PDs), and the Adult Attachment Questionnaire. Exploratory factor analysis provided a 5-factor solution that accounted for 54% of the variance and represented 5 mentalizing modes: excessive certainty, concrete thinking, good mentalization, teleological thought, and intrusive pseudomentalization. Secure attachment style was positively predicted by good mentalization and negatively predicted by intrusive pseudomentalization; disorganized attachment style was positively predicted by concrete thinking; dismissing attachment style was predicted by concrete thinking; and preoccupied attachment style was predicted by teleological thought, good mentalization, and excessive certainty about mental states. Personality disorders had clinically and empirically relevant associations with MMS factors: good mentalization was negatively associated with schizoid PD, and intrusive pseudomentalization was negatively associated with avoidant PD and positively associated with histrionic and narcissistic PDs. The results did not seem to be influenced by therapists' theoretical orientation. This study offers preliminary evidence for the validity and reliability of the MMS, which demonstrated promising psychometric properties. Further studies need to compare the MMS to a validated scale for the assessment of mentalization.

Keywords: mentalization, attachment style, assessment, psychopathology, reflective function

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Mentalization represents "the mental process by which an individual implicitly and explicitly interprets the actions of himself and others as meaningful on the basis of intentional mental states such as personal desires, needs, feelings, beliefs, and reasons" (Bateman & Fonagy, 2004, p. xxi). Problems in reflective functioning or mentalization have been found in several psychopathological domains, such as personality disorders (PDs), eating disorders, depression, and so forth (Bateman, Bolton, & Fonagy, 2013; Petersen, Brakoulias, & Langdon, 2016; Skårderud, 2007; Taubner, Kessler, Buchheim, Kächele, & Staun, 2011).

As suggested by Bateman and Fonagy (2016), mentalization failures in adulthood can take three forms: teleological thinking, concrete comprehension, and pseudomentalization. *Teleological thought* characterizes persons who recognize the presence of mental states only when they are concretized by physical, explicit forms (e.g., a patient who recognizes a therapist's commitment only when it is shown by the addition of psychotherapy sessions or a phone call). Experience is valid only when its consequences are apparent to all (Fonagy, Bateman, & Luyten, 2012). The physical and observable dimension is dominant, and information on the inner world is gained from the external reality.

Concrete thinking, or concrete comprehension, characterizes patients who experience reality and the inner world as a whole. A person who experiences reality through this modality can live under great stress, because projections of fantasies into their external world are felt as being real (Bateman & Fonagy, 2016): Patients' excessive reactions can be understood in light of the concreteness of their perceptions of feelings. These patients tend to interpret behaviors in terms of situational or physical constraints rather than inner mental states, and they can adopt tautological explanations that may be based on prejudice or generalization, which prevents genuine self-reflection on their mental states.

Both teleological thought and concrete thinking are typical of those situations in which the internal and external worlds are confused. In both dimensions, internal and external reality are in a sort of isomorphism, but in teleological thought the information about mental states is derived from the external reality ("He bought me flowers; therefore he loves me"), whereas in concrete thought the information about mental states is derived from the inner world of the patient ("I feel abandoned; therefore you want to leave me"). The same action may have different meanings if experienced in one of the two modalities of thought: For example,

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if a therapist unexpectedly calls a patient who is experiencing a teleological modality of thought, the patient may feel the therapist's effort to help him, whereas a patient who is in a psychic equivalence mode will think that the therapist is simply driven by pity and not genuinely interested.

In *pseudomentalization,* patients can understand and reflect on mental states only when they are not connected with reality: Mentalization becomes a pure intellectual game and is not related to real experience. The extreme consequence of this prementalizing representation of reality can be a dissociation of thoughts and feelings from reality, up to the point where they lose their meaning. Psychotherapy with these patients can lead to long and complex discussions that have no connection to the genuineness of their experiences (Fonagy et al., 2012). Pseudomentalization can assume different forms: *intrusive mentalization,* in which patients use their own mentalizing capacities to manipulate others; *overactive mentalization,* in which patients invest huge amounts of energy into thinking or talking about mental states; and *destructively inaccurate mentalization,* in which other people's mental states are denied and replaced with one's own distorted constructions.

The aforementioned prementalizing modalities of thought are normally experienced during childhood, are gradually abandoned developmentally, and are substituted by a sturdy mentalization, which is characterized by a good tolerance of uncertainty and the capacity to understand and describe coherently both one's own and others' mental states. A good capacity to mentalize is also related to an awareness that people can experience contrasting feelings and desires; moreover, a proper mentalizing stance implies a genuine curiosity about one's own and other people's mental states, which respects the principle of the "opaqueness" of minds (i.e., the knowledge that one often cannot be sure what others are thinking or feeling without being excessively disoriented by that knowledge; Bateman & Fonagy, 2016).

Assessment of Mentalization in Adults

The growing body of theoretical works on this topic is not paired by an equal amount of empirical research, which may be related to some problems in assessing these prementalizing modalities of thought. At the present time, assessment measures of mentalization can be divided into four main categories (Bateman & Fonagy, 2016): (a) interviews−narrative coding systems, (b) questionnaires, (c) experimental−observational tasks, and (d) projective measures. We do not consider here the projective measures, which are represented specifically by only the Projective Imagination Test (Blackshaw, Kinderman, Hare, & Hatton, 2001).

One of the more used and validated narrative-based measures is the Reflective Functioning Scale (RFS; Fonagy, Target, Steele, & Steele, 1998), which is rated on the basis of the Adult Attachment Interview (AAI) and shows good psychometric properties. The RFS represents an expert rating of mentalization that is useful for empirical purposes and can provide a single, global score on a Likert scale ranging from −1 (*negative reflective functioning*) to +9 (*marked reflective functioning*), which in some cases can be paired with an indication of the specific type of impairment in reflective functioning (RF). Even if this assessment measure does not explicitly assess prementalizing modalities of thought, raters can use markers that indicate failures of mentalization in adult patients: For example, a specific maker can be assessed when the interaction is overly analytic or hyperactive, meaning that the narrative is too deep, with detailed but unconvincing descriptions of the subjective reactions of self and others (e.g., "I began to see that it takes two to tango. It was a perfect collusion between the two of them. What has been called in popular psychology, you know, the doormat-tyrant relationship"; Fonagy et al., 1998, p. 26).

The Reflective Function Rating Scale (RFRS; Meehan, Levy, Reynoso, Hill, & Clarkin, 2009) represents a multi-item rating scale for assessing RF that can be applied to a range of data sources (e.g., interviews, including but not limited to the AAI) by informants such as therapists or observers rating interactions. By conducting a principal component factor analysis on a sample of 49 adult patients, Meehan et al. (2009) investigated the factor structure of the scale, finding the presence of three dimensions: (a) defensive−distorted, (b) awareness of mental states, and (c) developmental. This scale, however, has not been used in other studies as far as we know. The RFS and the other interview-based measures are highly reliable; however, they are time consuming because they require therapy session transcripts or interviews for the assessment (e.g., the AAI) and long trainings to be applied reliably. This restricts their application in large-scale studies and limits their use in clinical contexts.

Mentalization can also be measured through questionnaires, such as the Reflective Functioning Questionnaire (RFQ; Fonagy et al., 2016), the Mentalization Questionnaire (MZQ; Hausberg et al., 2012), and the Mentalization Scale (MentS; Dimitrijević, Hanak, Altaras Dimitrijević, & Marjanović, 2018), which can be self-reported by patients without being time consuming. The RFQ has shown good internal consistency and can discriminate between clinical samples and normal controls (Fonagy et al., 2016). Factor analysis showed the presence of two factors named Uncertainty about Mental States (RFQ_U) and Certainty about Mental States (RFQ_C). These two factors were significantly correlated with borderline features, severity of depression, and impulsivity (Fonagy et al., 2016). Moreover lower levels of reflective function were associated with nonsuicidal self-injury behaviors ($N = 253$; Badoud et al., 2015).

The MZQ has shown good internal consistency; the scale is composed by four factors: Refusing Self-Reflection ($\alpha = .68$), Emotional Awareness ($\alpha = .68$), Psychic Equivalence Mode ($\alpha = .57$), and Regulation of Affect ($\alpha = .60$). Moreover, Hausberg et al. (2012) found significant differences in the MZQ scores in relation to attachment security, with insecurely attached patients showing lower levels of mentalization than did secure subjects. The factor structure of the MentS was assessed in a sample of 288 adults and 278 college students; the scale is composed of three factors: Other-Related Mentalization (MentS-O; $\alpha = .77$), Self-Related Mentalization (MentS-S; $\alpha = .77$), and Motivation to Mentalize (MentS-M; $\alpha = .76$; Dimitrijević et al., 2018). Dimitrijević et al. (2018) found that patients with secure attachment scored higher on MentS than did patients with insecure attachment and that attachment anxiety was strongly negatively correlated with self-related mentalization.

These measures can be considered helpful and not time-consuming assessment tools; at the same time, self-report measures in this case would be biased by the fact that patients with a personality disorder may not be reliable when filling out mentalization measures, because they have problems with self-awareness

(Davidson, Obonsawin, Seils, & Patience, 2003; Huprich, Bornstein, & Schmitt, 2011). Moreover, patients with borderline features manifest limitations of their insight into the relative disadvantages in the capacity for cooperative relationships and a limited ability to approach life in a nonimpulsive manner, which may limit their capacity to complete self-report measures (Morey, 2014).

Experimental−observational tasks, such as the Reading the Mind in the Eyes Test (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), are based on the recognition of mental states though the observation of facial emotions presented to patients and have been used in a number of studies on the recognition of emotions by patients with psychopathology.

Some authors, however, have criticized the assumption that the identification of mental states though the observation of facial expressions can be considered on the whole as an indicator of mentalization or theory of mind (Oakley, Brewer, Bird, & Catmur, 2016). Moreover, experimental−observational tasks share a criticism that is common to all the aforementioned methodologies of assessing mentalization: They are mostly focused on the explicit sides of mentalizing and do not assess the automatic and implicit facets of the construct.

In light of the aforementioned considerations, we decided to develop a clinician-report measure to assess prementalizing modalities of thought. Previous studies have suggested that clinicians tend to make highly reliable evaluations if their observations and inferences are quantified using psychometrically sophisticated instruments (Blagov, Bi, Shedler, & Westen, 2012; Westen & Weinberger, 2004). The assessment of mentalization from a therapist perspective has two main advantages: (a) Clinicians can also evaluate implicit and automatic mentalization by observing how their patients interact with them and (b) considering that the therapeutic relationship tends to activate the attachment system and stress mentalizing capacities (Bateman & Fonagy, 2016), clinicians can evaluate mentalization in the here and now of the interaction with the patient ("online" mentalization).

Objectives and Hypotheses of the Current Study

This study was developed with the following aims:

1. Describe the development of the Modes of Mentalization Scale (MMS; Colli & Gagliardini, 2015), a new clinician-report assessment measure of mentalization, and provide initial data on its reliability and factor structure.

2. Test the construct validity of the MMS by using it to investigate the relationship between the prementalizing modalities of thought and patient and therapy variables and attachment style as they emerge during psychotherapy in patients with personality disorders (PDs).

Concerning the factor structure of the MMS, we expected to find four factors related to the theory of mentalization that guided us in developing it: three corresponding to the prementalizing modalities of thought (pseudomentalization, concrete thinking, and teleological stance) and one related to good mentalization. In the analysis of the relationship between those scales and other variables, we made some a priori predictions. First, we hypothesized that those prementalizing modes of thought would be clinically coherently related to clinical variables—more specifically, that prementalizing factors would be positively correlated with personality pathology and that patients who had more hospitalizations and/or showed more self-harming behaviors and/or suicidal attempts would score higher on prementalizing modes. We also hypothesized that MMS prementalizing factors would be negatively related with a good capacity to mentalize and positively related to insecure attachment styles, whereas a secure attachment style would not be significantly related to prementalizing modalities of thought and would be related to a good capacity to mentalize.

Method

Development of the Modes of Mentalization Scale

The study was approved by the University of Urbino "Carlo Bo" local ethics board. The MMS is a clinician-report assessment measure of the modes of mentalization and is written in Italian (the English translation of the MMS, which at the present time has not been validated yet, appears in the online supplemental materials). In developing the MMS, we created the first set of items ($N = 50$) by considering the following four facets of mentalizing thought as described by different authors (e.g., Bateman & Fonagy, 2016; Fonagy et al., 2012):

1. *Teleological stance*. This is characterized by items related to overrelying on the external aspects and not on inner mental states when interpreting behaviors. Patients who experience this prementalizing modality of thought may be more interested in the practical solution of problems and on people's actions rather than on their thoughts. Therapists tend to be more "active" with these patients and may add sessions or provide explicit advice on a more frequent basis than with other patients (Bateman & Fonagy, 2016).

2. *Concrete thinking.* This is characterized by items related to a sort of isomorphism of a patient's inner and outer world: People tend to interpret behavior on the basis of physical causes or invariant characteristics. People may also tend to interpret reality on the basis of the current experienced emotion (especially in the case of intense emotions) and to interpret the world in "good or bad" terms (Bateman & Fonagy, 2016). This prementalizing modality of thought can also be related to prejudices and generalizations based on heuristics.

3. *Pseudomentalization.* This is characterized by items related to an overinvolvement of abstract thought and of the cognitive facets of mentalization, with patients' being excessively sure of people's thoughts and treating psychotherapy as an intellectual game in which the affective facets of mentalization are not experienced.

4. *Good mentalization.* Good mentalization is characterized by the capacities to coherently describe mental states, recognize that people can feel contrasting desires and thoughts, and harbor a fair amount of doubt about what other people think or feel. A sane mentalization is man-

ifested through a patient's curiosity about the comprehension of mental states and is not compromised by the certainty of always knowing what is good or bad (Bateman & Fonagy, 2016).

This first set of 50 items was evaluated in terms of clarity and face validity by a pool of 15 clinicians who were experienced in treating PD patients and were familiar with the concept of mentalization: Items were rated on a 5-point Likert scale ranging from 1 (*not relevant*) to 5 (*very relevant*) for relevance and from 1 (*not clear*) to 5 (*very clear*) for clarity. A content validity index (CVI; Yaghmaie, 2009) was calculated by identifying the percentage of experts who rated the item as being both relevant and clear: Items that had a CVI over .75 remained, and the rest were discarded ($N = 18$); the remaining items were modified, based on the experts' suggestions. This led to the first version of the scale, which was composed by 32 items and was sent to a pool of 50 clinicians, who used it to rate a selected patient who met our inclusion criteria (at least 18 years old, had had no psychotic disease or psychotic symptoms in the last 6 months, and had a PD or a clinically relevant problematic in personality). We conducted a preliminary descriptive analysis and eliminated items with skewness and kurtosis values ± 2, mean equal to 0 or 5, and zero variance, as well as items that did not correlate with any other item ($N = 8$). The final item list contained 24 items. These first evaluations were not included in the present study but are available upon request.

Sampling Procedure

From the rosters of the two largest Italian associations of psychodynamic and cognitive−behavioral psychotherapy and from centers specialized in the treatment of PDs, we recruited, by e-mail, a random sample of clinicians with at least three years of postpsychotherapy licensure experience. We requested that they select a patient who was at least 18 years old, had had no psychotic disorder or psychotic symptoms for at least the last six months, had seen the therapist for a minimum of eight sessions and a maximum of 18 months, and had a PD diagnosis or a clinically relevant personality problem. To minimize selection biases, we directed the clinicians to consult their calendars to select the last patient they had seen during the previous week who met the study criteria. To minimize rater-dependent biases, we allowed each clinician to describe only one patient. We contacted 980 clinicians, of whom 260 (26.5%) responded that they were willing to participate. Of these, 236 (24.1%) were treating a patient who met the inclusion criteria and were invited to participate; 190 returned completed measures, for an overall response rate of 19.4%. The clinicians received no remuneration. All of the participants provided written informed consent.

Patients

The sample consisted of 190 Caucasian patients (66 men; 35%), with a mean age of 34.3 years ($SD = 11.3$; range = 18–65). The average length of treatment was 12.2 months ($SD = 10.6$; range = 1–18), and 26 patients (14%) had previously had one hospitalization and 38 (20%) patients had previously had two or more.

Forty-one patients (22%) had previously attempted suicide at least once, and 101 patients (53%) were also taking some form of pharmacotherapy. Additionally, 111 patients (62%) had a diagnosis of PD, alone or in comorbidity, following criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5;* American Psychiatric Association, 2013), 78 patients (41%) had clinically relevant personality problems, and 185 patients had one or more other *DSM–5* diagnoses. The most common diagnoses were mood disorders ($n = 120$), anxiety disorders ($n = 96$), and substance-related and addictive disorders ($n = 57$).

Therapists

This sample consisted of 190 Caucasian therapists (76 women; 40%) women), with a mean age of 37.3 years ($SD = 10.9$; range = 27–68). Three main theoretical approaches were represented: psychodynamic ($n = 80$), cognitive−behavioral ($n = 57$), and mentalization-based treatment (MBT; $n = 43$). Ten therapists reported other theoretical orientations (i.e., eclectic, systemic, and integrative). The average length of clinical experience as a psychotherapist was 8.8 years ($SD = 10.1$; range = 3–35). Seventy-four (39%) therapists were seeing the selected patients in a private clinical practice, whereas 116 (61%) were working in public mental health.

Measures

For validation purposes, the following additional instruments were used.

Adult Attachment Questionnaire. The Adult Attachment Questionnaire (AAQ; Westen & Nakash, 2005) is a 37-item clinician-report measure designed to assess patients' attachment styles. It is based on a 7-point Likert scale and codifies patients' attachment styles nto four different factors: secure (11 items), insecure-dismissing (nine items), insecure-preoccupied (eight items), and incoherent-disorganized (nine items). In the present study the reliability coefficients of the AAQ ranged from .69 (moderate) for the insecure−dismissing factor to .88 (good) for the secure attachment style factor. The insecure−preoccupied factor and incoherent−disorganized factor showed good alphas (.78 and .72, respectively).

Personality disorder. Following the same procedure adopted in similar studies (e.g., Betan, Heim, Zittel Conklin, & Westen, 2005; Colli, Tanzilli, Dimaggio, & Lingiardi, 2014), we asked clinicians to rate each randomly ordered criterion for each of the *DSM–5* PD diagnoses (American Psychiatric Association, 2013) as present or absent. This procedure provided both a categorical diagnosis (by applying *DSM–5* cutoffs) and a dimensional measure (number of criteria met for each disorder).

Clinical questionnaire. The clinical questionnaire was constructed ad hoc for clinicians in order to obtain general information about them, their patients, and the therapies they used. Clinicians provided basic demographic and professional data, including discipline (psychiatry or psychology), theoretical approach, hours of work, and gender, as well as patients' ages, and other concomitant therapies (e.g., pharmacotherapy). Clinicians provided additional data on the therapies, such as length of treatments and number of sessions. To provide a more comprehensive assessment of patients' problems that may be connected to PDs and/or mentalizing deficits, respondents were also asked to use the items of the Clinical Questionnaire to rate the presence or absence of a list of clinical problems (American Psychiatric Association, 2013), such

as dissociative symptoms, self-harming behaviors, and eating disorders. Clinical Questionnaire was also used to assess trauma history in three different dimensions: sexual violence, domestic violence, and physical violence.

Statistical Analysis

All analyses were conducted with SPSS Statistics 20 for Windows. Before performing the statistical analyses in this sample, we tested the distribution of the data with an analysis of skewness and kurtosis values and found that the distribution of the data for the sample is normal. To identify the factor structure of the MMS, we conducted an exploratory factor analysis using principal axis factoring and promax rotation, because we hypothesized that the factors would be interdependent or nonorthogonal. To select the numbers of factors to extract, we used Kaiser's criteria (eigenvalues >1), inspection of the scree plot, percentage of variance accounted for, and parallel analysis. Parallel analysis was calculated using the SPSS syntax developed by O'Connor (2000), with a generation of 1,000 random permutations from our data set. To create factor-based scores, we included all items loading ≥.40 for each factor to maximize reliability (coefficient alpha; Stevens, 2002). We calculated the Pearson correlations between MMS factors and the length of treatment, personality pathology, and number of previous hospitalizations; we conducted analysis of variance (ANOVA) to assess the relationship between MMS factors and self-harming behaviors, suicidal thoughts, hospitalizations, substance abuse, and suicidal behaviors. To assess the relationship between mentalization and attachment style, we applied a blockwise multiple regression analysis. To apply the regression analysis, we tested autocorrelation and multicollinearity, yielding optimal results: The Durbin-Watson Test ranged from 1.49 to 1.97, the variance inflation factor ranged between 1.00 and 2.53, and the tolerance ranged from .40 to 1.000. We calculated the partial correlations between the number of criteria assessed for each PD for each patient and MMS factors, each time removing the effects of all the nine other PDs.

Results

Factor Structure of the Modes of Mentalization Scale

The exploratory factor analysis suggested the presence of five factors that accounted for 62% of the variance (see Table 1). Measures of sampling adequacy had good results (Kaiser–Meyer–Olkin = .84). The intercorrelations among the five factors ranged from −.44 to .47.

Factor 1, excessive certainty (six items; coefficient $\alpha = .91$; minimum [min] = .00, maximum [max] = 5.00; $M = 2.80$, $SD = 1.12$), was marked by items indicating an overactivation of mentalization, in which patients show an excessive certainty about mental states and think that they can provide all the answers regarding other people's inner worlds. The items of this factor indicate the tendency to be excessively sure of other people's motivations, the inability to consider different perspectives, and the belief that one always knows what others are thinking or feeling.

Factor 2, concrete thinking (six items; coefficient $\alpha = .79$; min = .00, max = 5.00; $M = 2.40$, $SD = 1.04$), was marked by items indicating the tendency to interpret reality on the basis of heuristics and prejudices and/or on the basis of physical or invariant constraints. This factor's items describe the tendency to use commonsense explanations or clichés to explain emotions and to adopt bizarre explanations of behaviors.

Factor 3, good mentalization (five items; coefficient $\alpha = .83$; min = .00, max = 5.00; $M = 2.40$, $SD = .99$), was marked by items indicating a good capacity to recognize and coherently describe mental states, united with a curious stance toward the same and an awareness that people can experience contrasting feelings and desires. The items indicate a good capacity to understand the complex nature of mental states and their relation to behaviors and the tendency to spontaneously refer to mental states to interpret behaviors.

Factor 4, teleological thought (three items; coefficient $\alpha = .77$; min = .00, max = 5.00; $M = 3.09$, $SD = 1.15$), indicates a tendency to rely more on the physical manifestations of mental states (i.e., actions) rather than interpreting the world in terms of beliefs, desires, or thoughts; to focus more on what people do (and not on what they think or feel); and to be more focused on the physical, practical resolution of a problem rather than on the meanings related to the situation.

Factor 5, intrusive pseudomentalization (four items; coefficient $\alpha = .67$), is related to a more malign form of hyper- or pseudomentalization, indicating a tendency to intrude on and manipulate other people's lives, in which the reflections of one's inner world do not seem to be genuine. This scale's items also indicate the tendency to use therapy as an intellectual game.

Ruling Out the Theoretical Approach Bias

An important question is the extent to which the factor structure we found simply reflects the theoretical beliefs of participating clinicians, particularly given that 43 clinicians in the sample reported an MBT orientation. To evaluate this possibility, we conducted a series of exploratory factor analyses, each time excluding clinicians belonging to a specific theoretical approach (psychodynamic, cognitive–behavioral, and MBT). Using the same rotation and estimation procedures, the factor analyses produced the same factor structure as did the complete sample.

We calculated an ANOVA with Bonferroni corrections considering the three main theoretical orientations (psychodynamic, MBT, and cognitive–behavioral) present in our sample. ANOVA suggested that MBT therapists rated significantly higher excessive certainty than did cognitive–behavioral therapists, df: $F(1, 185) = 4.10$, $p = .02$, and higher but not significantly higher than did psychodynamic therapists, whereas cognitive–behavioral therapists rated the good mentalization factor significantly higher than did the MBT group, df: $F(1, 185) = 8.39$, $p = .000$. Finally, MBT and psychodynamic therapists rated the teleological factor significantly higher than did cognitive–behavioral therapists, df: $F(1, 185) = .84$, $p = .01$.

Associations With Clinical and Therapy Variables

We calculated the Pearson correlations to investigate the relationship between MMS factors and patient and therapy variables (see Table 2). Correlations show that there is a moderate positive correlation between MMS prementalizing factors and the number of PD criteria and a moderate negative correlation with the good mentalization factor of the MMS and personality pathology. Moreover, the number of previous hospitalizations has a small but positive correlation with the teleological factor and a small negative correlation with the good mentalization factor. We found no significant correlation between MMS factors and the length of treatment.

Table 1
Factor Structure of the Modes of Mentalization Scale (N = 190)

Factor and items	λ 1	2	3	4	5
Factor 1. Excessive certainty					
P. tends to express an excessive certainty about other people's thoughts or feelings.	**.91**	.03	−.03	−.15	.01
P. is excessively sure of the motivations and/or thoughts and/or emotions of others.	**.90**	−.04	.12	.08	−.03
P. seems to have all the answers on his/her own and/or other people's behavior.	**.85**	−.06	−.11	.05	−.01
P. believes he/she often knows what someone else is thinking or feeling.	**.76**	.06	.07	.01	.13
P. tends to rely in an excessive way on his/her intuitive capacity.	**.70**	.06	015	.03	.10
P. can't consider a point of view that differs from his/her own.	**.47**	−.20	−.29	.27	−.06
Factor 2. Concrete thinking[b]					
P. tends to adopt prejudice or generalization to explain his/her own or others' behavior.	.19	**.78**	−.05	.00	−.21
P. tends to interpret behaviors in terms of physical causes (e.g. illness) and/or stable characteristics (e.g. race, cultural background, intelligence) and/or in terms of social external factors.	.02	**.68**	.08	.26	−.05
P. uses commonsense explanations or clichés to explain affects or feelings.	.06	**.65**	−.08	−.02	.03
P. seems to excessively rely on the fact that external changes can change his/her moods.	−.19	**.58**	.06	.11	.24
P. interprets his/her own or other people's behavior in terms of situational or physical constraints.	−.25	**.51**	−.02	.17	.22
P. adopts unlikely explanations of behaviors.	.07	**.45**	.19	−.07	.05
Factor 3. Good mentalization[c]					
When solicited with specific questions, P. interprets behaviors in terms of mental states.	−.05	.04	**.85**	.04	.03
P. is curious about the comprehension of his/her own or other people's functioning.	−.03	.05	**.82**	−.03	−.02
P. can describe mental states coherently.	.17	−.05	**.75**	.03	−.12
P. understands that people can experience contrasting feelings or desires.	.08	.00	**.70**	.01	−.07
P. spontaneously interprets behaviors in terms of mental states.	.04	−.04	**.51**	−.22	.15
Factor 4. Teleological thought[d]					
P. seems to focus more on what people do rather than on what they think or feel.	.01	.25	−.01	**.86**	.00
P. seems to be more focused on the practical resolution of a problem rather than on the underpinning meanings.	.06	.30	−.02	**.47**	.03
P. seems to recognize the interest of significant others only if it is supported by concrete actions.	.03	.06	−.17	**.41**	.11
Factor 5. Intrusive pseudomentalization[e]					
P.'s reflections on his/her inner world seem to be not genuine.	.07	.23	−.19	−.15	**.66**
P. seems to use his/her mental capacities to manipulate other people.	.09	−.05	.12	.23	**.65**
P. seems to treat therapy as an intellectual game.	.27	.15	−.07	−.16	**.46**
P. seems to be intrusive toward other people.	.26	−.23	.08	.18	**.40**

Note. Item loadings greater than |.40| are in boldface. P. = patient.
[a] Eigenvalue = 7.39; variance explained = 28%. [b] Eigenvalue = 3.72; variance explained = 14%. [c] Eigenvalue = 2.08; variance explained = 8%. [d] Eigenvalue = 1.63; variance explained = 6%. [e] Eigenvalue = 1.29; variance explained = 5%.

ANOVA was used to assess possible differences among patients with or without a clinical disorder diagnosis (Axis I disorders in the *DSM–IV–TR;* American Psychiatric Association, 2000): We found no significant differences in MMS scores among patients presenting anxiety disorders, obsessive–compulsive disorder, dissociative disorder, panic disorder, eating disorders, and psychosomatic disorders. We used the same analysis to assess the relationship between MMS factors and self-harming behaviors, suicidal thoughts, substance abuse, and suicidal behaviors: Patients with self-harming behaviors had significantly higher scores on the teleological factor, $F(1, 186) = 14.35$, $p = .00$, and significantly lower scores on the good mentalization factor, $F(1, 186) = 5.62$, $p = .02$, than did patients without. Patients with suicidal ideations scored lower on good mentalization, $F(1, 183) = 4.10$, $p = .04$. Higher scores on the teleological factor were found in patients with substance abuse, $F(1, 185) = 5.24$, $p = .02$, and suicidal behaviors, $F(1, 186) = 5.91$, $p = .02$. We applied ANOVA to assess whether there were differences related to MMS factors between patients with and without sexual abuse and physical violence, and we found that patients with trauma history had higher scores on the teleological factor, but the result was not statistically significant.

Mentalization, Personality Pathology, and Attachment Style

We examined the relationship between mentalization, attachment style, and PDs by using a blockwise multiple regression analysis to measure which of the MMS factors predicted each attachment dimension measured with the AAQ (see Table 3).

Our results show that all attachment styles had a significant relationship with at least one of the MMS factors. More specifically, secure attachment style was positively predicted by good mentalization and negatively predicted by intrusive pseudomentalization; dismissing attachment style was predicted by concrete thinking; and preoccupied attachment style was predicted by teleological thought, good mentalization, and excessive certainty

Table 2
Pearson Correlations of MMS Factors and Clinical Variables (N = 190)

Factor	Patient		
	No. of PD criteria	No. of hospitalizations	Therapy (months of treatment)
Excessive certainty	.25***	.05	−.13
Concrete thinking	.37***	.08	−.04
Good mentalization	−.33***	−.16*	.11
Teleological thought	.39***	.21**	−.08
Intrusive pseudomentalization	.23**	.10	−.07

Note. MMS = Modes of Mentalization Scale; PD = personality disorder.
* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

about mental states. A disorganized attachment style was positively predicted by concrete thinking.

We calculated the partial correlations for the number of criteria satisfied for each PD, each time cutting out the effects of all other PDs (see Table 4). Personality disorders were significantly associated with MMS factors. Excessive certainty was positively associated with narcissistic PD and negatively associated with schizoid PD. Concrete thinking was positively associated with borderline, histrionic, and obsessive−compulsive PDs, whereas teleological thought predicted borderline, narcissistic, and obsessive−compulsive PDs. Good mentalization negatively predicted schizoid PD. Intrusive pseudomentalization was negatively associated with avoidant PD and positively associated with histrionic and narcissistic PDs.

Discussion

The first aim of this study was to provide data on the factor structure of the MMS. Exploratory factor analysis suggested the presence of five different factors that were conceptually coherent and in line with the theory of the multidimensional nature of the construct: excessive certainty, concrete thinking, good mentalization, teleological stance, and intrusive pseudomentalization. The factor structure that emerged seems quite robust, with a good internal consistency for each factor, with alpha values ranging from .67 to .91, and a good differentiation between factors, with items' not loading strongly across multiple factors (see Table 1).

The first factor, which describes a patient's excessive certainty about knowing mental states, with an overactivation of mentalizing and a lack of humility in relation to the knowledge of the mental states of others, sounds comparable to the Certainty factor of the RFQ (Badoud et al., 2015; Fonagy et al., 2016) and is coherent with literature that has described this specific impairment in mentalization in patients with borderline PD (e.g., Bo, Sharp, Fonagy, & Kongerslev, 2017) and/or characterized by grandiosity and narcissism (Ensink, Duval, Normandin, Sharp, & Fonagy, 2018). The second factor, concrete thinking, describes a mentalizing style characterized by a patient's tendency to interpret behaviors in terms of heuristics and prejudices and/or on the basis of physical

Table 3
Multiple Regression Model of MMS Factors Predicting Attachment Style

Personality disorder and factors	*b*	*SE*	β	*t*	*p*	R^2 corr	*F*
Secure						.57	51.27***
Constant	.48	.28		1.73	.09		
Excessive certainty	.03	.06	.03	.46	.65		
Concrete thinking	.00	.06	.00	.01	.99		
Good mentalization	.82	.06	.77	13.91	.000		
Teleological thought	.08	.06	.09	1.31	.19		
Intrusive pseudomentalization	−.14	.06	−.15	−2.50	.01		
Dismissing						.13	6.40***
Constant	2.03	.36		5.69	.000		
Excessive certainty	.07	.07	.08	.96	.34		
Concrete thinking	.24	.08	.27	3.18	.002		
Good mentalization	−.09	.08	−.09	−1.17	.25		
Teleological thought	.02	.08	.02	.26	.79		
Intrusive pseudomentalization	.03	.07	.04	.43	.67		
Preoccupied						.30	17.05***
Constant	.60	.39		1.56	.12		
Excessive certainty	.16	.08	.15	1.99	.05		
Concrete thinking	−.04	.08	−.04	−.52	.60		
Good mentalization	.25	.08	.21	2.98	.003		
Teleological thought	.52	.08	.52	6.24	.000		
Intrusive pseudomentalization	.08	.08	.09	1.09	.28		
Disorganized						.14	7.37***
Constant	1.65	.36		4.56	.000		
Excessive certainty	−.04	.07	−.05	−.55	.59		
Concrete thinking	.27	.08	.29	3.50	.001		
Good mentalization	−.10	.08	−.11	−1.41	.16		
Teleological thought	.09	.08	.10	1.09	.28		
Intrusive pseudomentalization	.02	.07	.02	.20	.84		

Note. MMS = Modes of Mentalization Scale; corr = corrected.
*** $p \leq .001$.

Table 4
Partial Correlations of MMS Factors and Personality Disorders

Personality disorder	Excessive certainty	Concrete thinking	Good mentalization	Teleological thought	Intrusive pseudomentalization
Paranoid	.11	−.08	−.07	.02	−.11
Schizoid	−.16*	.10	−.27***	.06	.01
Schizotypal	.10	.08	−.09	−.02	.09
Antisocial	.09	.00	−.10	−.09	−.02
Borderline	−.07	.20**	−.14	.28***	.00
Histrionic	.01	.15*	.01	.01	.20**
Narcissistic	.31***	.10	−.03	.22**	.40***
Dependent	−.14	−.01	−.01	−.08	−.05
Avoidant	.04	−.06	.13	.04	−.18*
Obsessive−compulsive	.12	.25***	−.03	.16*	.14

Note. Analysis is based on the number of criteria satisfied for each patient for each personality disorder. MMS = Modes of Mentalization Scale.
* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

constraints, using common sense, clichés, or even bizarre explanations to understand behaviors, and this is coherent with clinical literature that has described the specific difficulty some patients have in using mental states to interpret behaviors (Bateman & Fonagy, 2016).

The third factor, good mentalization, describes different facets of good reflective function such as curiosity and humility about knowing one's own and others' mental states and a tendency to answer in terms of mental states when solicited for answers to specific demand questions but also a tendency to spontaneously think in terms of mental states. The last two factors that emerged were the teleological and the intrusive mentalization. The former is coherent, with clinical descriptions of patients (especially traumatized and borderline personality disorder [BPD] patients) who tend to rely on the physical consequences of mental states rather than on their own and others' inner worlds (Bateman & Fonagy, 2016); the latter is in line with descriptions of mentalization in patients with antisocial personality disorder (Bateman et al., 2013).

We conducted a series of exploratory factor analysis, each time excluding clinicians belonging to a specific theoretical approach (psychodynamic, cognitive–behavioral, and MBT), and results suggested that the factor structure does not seem to be affected by clinicians' theoretical orientation. At the same time, we found some significant differences in relation to the excessive certainty, good mentalization, and teleological factors among the three theoretical orientations. These results may be related to the differences among the patients in the three subsamples, but may also be related to theoretical differences between the different therapists. Specifically, the fact that MBT therapists tend to rate scores on the excessive certainty factor higher, whereas cognitive–behavioral therapists tend to provide lower scores on the good mentalization factor, may be related to the fact that MBT therapists are trained to recognize the less genuine forms of mentalization. Moreover, cognitive–behavioral therapists may be more focused on the cognitive (vs. affective) processes, and this may be lead to rating a statement from a patient as "good mentalizing communication," whereas the same communication may be considered an expression of the defense mechanism of "rationalization" by a psychodynamic psychotherapist and as "pseudomentalizing" by an MBT therapist. The data also suggest that MBT and psychodynamic therapists assess scores on the teleological dimension higher; this may be because cognitive–behavioral therapies are more focused on behaviors and on the external manifestations of mental states. In the future it would be important to address these issues to understand something more about these differences.

The second aim of our study was to assess criterion validity in relation to certain clinical variables. We found several clinically coherent correlations between personality pathology and MMS factors, indicating, for example, that patients with a higher number of PD criteria have higher scores on all the prementalizing factors. This result is in line with the clinical and empirical literature on the topic, which has enlightened the relationship between mentalizing problematics and personality pathology (Bateman & Fonagy, 2016).

The teleological factor was also associated with a higher number of previous hospitalizations; moreover, ANOVA showed that higher scores on the teleological factors were present in patients with self-harming behaviors, substance abuse, and suicidal behaviors. This result is in line with studies that have shown that lower levels of mentalization are associated with nonsuicidal self-injury (Badoud et al., 2015) and impulsivity (Fonagy et al., 2016). Patients with higher scores on teleological thought may be more focused on the physical outcomes of mental states, and this may be related to the tendency to look for the manifestations of mental states in the outer reality. When this is not paired with a robust capacity to mentalize, patients may be more prone to acting out and to at-risk behaviors, because the feelings that cannot be expressed in words have to be acted out in the external world in order to be felt as "real."

Contrary to our expectations, even though patients with trauma history had more problematics in mentalization, this result was not statistically significant. This may be related to the influence of different variables that may mediate the relationship between trauma history and mentalization. Moreover, one must consider that the evaluations constituting this sample belong to patients who were, at the time of the assessment, in an ongoing psychotherapy; these issues may have emerged throughout the treatment and have been addressed by the therapeutic dyad, with good consequences for the possibility to mentalize these events.

We used the MMS to examine the relationship between mentalization and attachment style and found that impairments in mentalization were positively related to insecure attachment and

negatively related to secure attachment. Secure attachment style was positively predicted by good mentalization and negatively predicted by intrusive pseudomentalization and excessive certainty about mental states, whereas disorganized attachment style was positively predicted by excessive certainty and negatively predicted by good mentalization (see Table 3). Dismissing attachment style was predicted by teleological thought, and preoccupied attachment style was predicted by concrete thinking and excessive certainty about mental states. These results are in line with those in the empirical literature on mentalization (Dimitrijević et al., 2018), which has enlightened how attachment anxiety negatively correlates with the capacity to mentalize toward the self. These subjects, who have more problems with mentalizing toward themselves, may be more compelled by the hyperactivation of mentalization toward others, and this may invalidate their capacity to correctly interpret their mental states.

Good mentalization positively predicted a secure attachment style and negatively predicted a disorganized attachment style but did not predict other insecure attachment styles. The fact that only disorganized attachment style is negatively related to good mentalization may indicate that disorganized patients are characterized by a more severe impairment of mentalization and cannot rely on a good capacity to mentalize, but insecure patients may show a less drastic impairment of this capacity.

Whereas the effect size predicting secure attachment is strong, for the insecure types the effect size is more modest (see Table 3). This result may indicate that, although good mentalization plays a crucial role in the prediction of secure attachment style and the relationship between these two variables may be clearer and more linear, the path that leads to insecure attachment styles may be more complex, and more needs to be known about other variables that may influence this relationship.

We also used the MMS to examine the relationship between mentalization and personality disorders (see Table 4) and found different specific patterns of mentalization failures. Narcissistic PD, for example, was characterized by a combination of intrusive pseudomentalization, teleological thought, and excessive certainty about mental states. Borderline PD was associated with concrete thinking and teleological thought, and this result is in line with the clinical literature on borderline patients and these patients' tendency to act out (Bateman & Fonagy, 2016). This result is also in line with the theoretical literature on mentalization and enactments with BPD patients (Bateman & Fonagy, 2016) The strong negative association of good mentalization over schizoid PD may suggest that the difficulties in mentalizing may be more severe in these subjects. Our results are in line with the clinical, empirical, and theoretical literature on PDs and mentalization.

This study has some limitations. First, clinicians provided data on patients' mentalization and attachment styles, and this might be related to a bias in our results. We wanted to test the validity of the scale as a first, and this began with clinicians alone, because they are the selected raters of the scale. The decision to use therapists as assessors was also motivated by the awareness that clinicians can provide highly reliable and valid judgments if their observations are quantified with psychometrically sophisticated assessment tools and based on the criticisms related to self-reporting and observer-rated measures for the assessment of mentalization. Patients with egosyntonic problematics, in fact, may have issues in answering items that assess their self-reflexivity. At the same time, methods based on the evaluations provided by external raters may not be able to catch the more implicit and automatic facets of mentalization as they manifest in the immediacy of the interaction with the therapist.

An important limitation of this study is related to the lack of comparison between the MMS and one of the more important and widely used assessment measures of mentalization, the RFS. Comparing our results with the assessment of patients' reflective function would be essential to confirm the findings of this study. In this study, the factor structure and criterion validity of the scale have been investigated in a sample of 191 patients. Because the measure has a relatively low number of items and a relatively low number of components, the sample size may be considered adequate, but it is still a small sample, and this work should be replicated including more subjects.

Despite the limitations described and the need for further validation of the scale, our preliminary results suggest that the MMS can be a reliable measure for the evaluation of mentalization, with the advantage of being economical and able to provide an articulate and complex description of patients' mentalizing capacities, which could be useful in everyday clinical practice and for research purposes.

摘要

摘要:本研究的目标是为一个新的心理化模式的临床测量表,即"心理化量表模式"(MMS)的初步验证提供数据,并检验其构想的有效性,通过MMS研究心理化和临床变量, 人格病理学和依恋模式之间的关系. 方法:随机样本是190位治疗师与各自的一位最近六个月里没有精神病症状的成年患者,使用了MMS, 临床调查问卷, 人格障碍检查表和成人依恋调查表. 结果:探索性因素分析提供了一个五因素的解答,54%的方差,代表了五种心理化模式:过度确定性, 具体思维, 良好的心理化, 目的论的思考, 侵入性的假性心理化. 安全型依恋由良好的心理化给出了一个正向预测,而侵入性的假性心理化则给出了一个负向预测;混乱型依恋由具体思维给出了一个正向预测;疏离型依恋由具体思维给出预测;焦虑矛盾型依恋则由目的论的思考, 良好的心理化和精神状态的过度确定性给出预测. 人格障碍与MMS因素有临床的和经验性的相关:良好的心理化与类分裂性人格障碍呈负相关,侵入性假性心理化与回避性人格障碍呈负相关,与戏剧性人格障碍和自恋性人格障碍呈正相关. 结果似乎并没有受到治疗师的理论取向所影响. 结论:此研究为MMS 的信度和效度提供了初步证据,证实了其有前途的心理测量性能. 进一步的研究需要将MMS 与一个经过验证的心理化评估量表进行比较.

关键词: 心理化, 依恋类型, 评估, 精神病理学, 反思功能

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Badoud, D., Luyten, P., Fonseca-Pedrero, E., Eliez, S., Fonagy, P., & Debbané, M. (2015). The French version of the Reflective Functioning Questionnaire: Validity data for adolescents and adults and its association with non-suicidal self-injury. *PLoS ONE, 10*(12), e0145892. http://dx.doi.org/10.1371/journal.pone.0145892

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "Reading the Mind in the Eyes" Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning

autism. *Journal of Child Psychology and Psychiatry, 42,* 241–251. http://dx.doi.org/10.1111/1469-7610.00715

Bateman, A. W., Bolton, R., & Fonagy, P. (2013). Antisocial personality disorder: A mentalizing framework. *Journal of Lifelong Learning in Psychoanalysis, 11,* 178–186. http://dx.doi.org/10.1176/appi.focus.11.2.178

Bateman, A. W., & Fonagy, P. (2004). *Psychotherapy for borderline personality disorder. Mentalization based treatment*. Oxford, UK: Oxford University Press.

Bateman, A. W., & Fonagy, P. (2016). Mentalization-based treatment for personality disorders: A practical guide. *Introducing Oxford Clinical Psychology*. Advance online publication. http://dx.doi.org/10.1093/med:psych/9780199680375.001.0001

Betan, E., Heim, A. K., Zittel Conklin, C., & Westen, D. (2005). Countertransference phenomena and personality pathology in clinical practice: An empirical investigation. *American Journal of Psychiatry, 162,* 890–898.

Blackshaw, A. J., Kinderman, P., Hare, D. J., & Hatton, C. (2001). Theory of mind, causal attribution and paranoia in Asperger syndrome. *Autism, 5,* 147–163. http://dx.doi.org/10.1177/1362361301005002005

Blagov, B., Bi, W., Shedler, J., & Westen, D. (2012). The Shedler-Westen Assessment Procedure (SWAP): Evaluating psychometric questions about its reliability, validity, and fixed score distribution. *Assessment, 19,* 370–382.

Bo, S., Sharp, C., Fonagy, P., & Kongerslev, M. (2017). Hypermentalizing, attachment, and epistemic trust in adolescent BPD: Clinical illustrations. *Personality Disorders: Theory, Research, and Treatment, 8,* 172–182. http://dx.doi.org/10.1037/per0000161

Colli, A., & Gagliardini, G. (2015). *Modes of Mentalization Scale*. Unpublished manual, Department of Humanities, "Carlo Bo" University of Urbino, Italy.

Colli, A., Tanzilli, A., Dimaggio, G., & Lingiardi, V. (2014). Patient personality and therapist response: An empirical investigation. *American Journal of Psychiatry, 171,* 102–108. http://dx.doi.org/10.1176/appi.ajp.2013.13020224

Davidson, K. M., Obonsawin, M. C., Seils, M., & Patience, L. (2003). Patient and clinician agreement on personality using the SWAP-200. *Journal of Personality Disorders, 17,* 208–218. http://dx.doi.org/10.1521/pedi.17.3.208.22148

Dimitrijević, A., Hanak, N., Altaras Dimitrijević, A., & Marjanović, Z. J. (2018). The Mentalization Scale (MentS): A self-report measure for the assessment of mentalizing capacity. *Journal of Personality Assessment, 100,* 268–280. http://dx.doi.org/10.1080/00223891.2017.1310730

Ensink, K., Duval, J., Normandin, L., Sharp, C., & Fonagy, P. (2018). Measuring reflective functioning in adolescents: Relation to personality disorders and psychological difficulties. *Adolescent Psychiatry, 8,* 5–20. http://dx.doi.org/10.2174/2210676608666180208161619

Fonagy, P., Bateman, A. W., & Luyten, P. (2012). Introduction and overview. In P. Fonagy & A. W. Bateman (Eds.), *Handbook of mentalizing in mental health practice* (pp. 3–42). Arlington, VA: American Psychiatric Publishing.

Fonagy, P., Luyten, P., Moulton-Perkins, A., Lee, Y. W., Warren, F., Howard, S., . . . Lowyck, B. (2016). Development an validation of a self-report measure of mentalizing: The Reflective Functioning Questionnaire. *PLoS ONE, 11*(7), e0158678. http://dx.doi.org/10.1371/journal.pone.0158678

Fonagy, P., Target, M., Steele, H., & Steele, M. (1998). *Reflective functioning manual: Version 5*. Unpublished manual.

Hausberg, M. C., Schulz, H., Piegler, T., Happach, C. G., Klöpper, M., Levke Brütt, A. L., . . . Andreas, S. (2012). Is a self-rated instrument appropriate to assess mentalization in patients with mental disorders? Development and first validation of the Mentalization Questionnaire (MZQ). *Psychotherapy Research, 22,* 699–709. http://dx.doi.org/10.1080/10503307.2012.709325

Huprich, S. K., Bornstein, R. F., & Schmitt, T. A. (2011). Self-report methodology is insufficient for improving the assessment and classification of Axis II personality disorders. *Journal of Personality Disorders, 25,* 557–570. http://dx.doi.org/10.1521/pedi.2011.25.5.557

Meehan, K. B., Levy, K. N., Reynoso, J. S., Hill, L. L., & Clarkin, J. F. (2009). Measuring reflective function with a multidimensional rating scale: Comparison with scoring reflective function on the AAI. *Journal of the American Psychoanalytic Association, 57,* 208–213. http://dx.doi.org/10.1177/0003065109570011008

Morey, L. C. (2014). Borderline features are associated with inaccurate trait self-estimations. *Borderline Personality Disorder and Emotion Dysregulation, 1,* 4. http://dx.doi.org/10.1186/2051-6673-1-4

Oakley, B. F. M., Brewer, R., Bird, G., & Catmur, C. (2016). Theory of mind is not theory of emotion: A cautionary note on the Reading the Mind in the Eyes Test. *Journal of Abnormal Psychology, 125,* 818–823. http://dx.doi.org/10.1037/abn0000182

O'Connor, B P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers, 32,* 396–402.

Petersen, R., Brakoulias, V., & Langdon, R. (2016). An experimental investigation of mentalization ability in borderline personality disorder. *Comprehensive Psychiatry, 64,* 12–21. http://dx.doi.org/10.1016/j.comppsych.2015.10.004

Skårderud, F. (2007). Eating one's words, part II: The embodied mind and reflective function in anorexia nervosa – theory. *European Eating Disorders Review, 15,* 243–252.

Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Taubner, S., Kessler, H., Buchheim, A., Kächele, H., & Staun, L. (2011). The role of mentalization in the psychoanalytic treatment of chronic depression. *Psychiatry: Interpersonal and Biological Processes, 74,* 49–57. http://dx.doi.org/10.1521/psyc.2011.74.1.49

Westen, D., & Nakash, O. (2005). *Attachment Questionnaire (AQ) manual*. Unpublished manual.

Westen, D., & Weinberger, J. (2004). When clinical description becomes statistical prediction. *American Psychologist, 59,* 595–613. http://dx.doi.org/10.1037/0003-066X.59.7.595

Yaghmaie, F. (2009). Content validity and its estimation. *Journal of Medical Education, 3,* 25–27.