

REFERENCES

- DOWNING, G. (2001). EMOTION THEORY RECONSIDERED. In *Heidegger, Coping, and Cognitive Science*, ed.M. Wrathall & J. Malpas. Cambridge: MIT Press, pp. 245–270.
- FIVAZ-DEPEURSINGE, E., & CORBOZ-WARNERY, A. (1999). *The Primary Triangle: A Developmental Systems View of Mothers, Fathers, and Infants*. New York: Basic Books.
- HARRISON, A.M. (2005). Herd the animals into the barn: A parent consultation model of child evaluation. *Psychoanalytic Study of the Child* 60:128–157.

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MEASURING REFLECTIVE FUNCTION WITH A MULTIDIMENSIONAL RATING SCALE: COMPARISON WITH SCORING REFLECTIVE FUNCTION ON THE AAI

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Over the last decade the concept of reflective function (RF) has become increasingly important in psychoanalysis. Fonagy and colleagues (1995) coined the term to describe the developmental achievement whereby children acquire the capacity to mentalize the thoughts, feelings, intentions, and desires of self and others. Drawing on developmental theory and research, they argue that the capacity for RF is dependent on the quality of interpersonal interactions, particularly the emotional relationship between the infant and caregivers “who are sufficiently benign and reflective” (Fonagy and Target 1996, p. 218). The concept is rooted in psychoanalytic object relations theory and attachment theory.

Reflective function has been operationalized by Fonagy and colleagues (1995) to evaluate the quality of mentalization in the context of attachment relationships, and initial research using the Reflective Function

Scale has been promising. In a study examining the role of the parents' mentalizing skills in relation to their infant's attachment pattern, Fonagy and colleagues (1995) found that RF mediated the relationship between parental attachment security and infant attachment security in the Strange Situation (Ainsworth et al. 1978) at one year and at eighteen months; insecurely attached parents with high RF were more likely to have securely attached babies than were insecurely attached parents with low RF.

Consistent with this finding, Slade and colleagues (Grienenberger, Kelly, and Slade 2005) have shown that a mother's RF mediates the relationship between atypical maternal behavior and attachment security in their infants. Levy and colleagues (2005) extended the validity of the RF construct by relating it to external measures of neurocognitive functioning, including attentional capacities, executive functioning, and impulsivity. Fonagy and colleagues (1996) found that among psychiatric inpatients reporting abuse, those who scored low on RF were more likely to be diagnosed with BPD compared with those who were abused but scored high on RF. Thus, high RF seems to be a possible buffer against the development of BPD in cases with a history of abuse.

Consistent with Fonagy's theory, RF has been found to be amenable to change through some types of psychotherapy. Levy and colleagues (2006) have found that patients treated for one year in Kernberg's Transference-Focused Psychotherapy (TFP) evidenced significant changes in RF, while the RF of patients treated with Dialectical Behavior Therapy (DBT) and supportive psychotherapy remained the same.

As important and beneficial as the concept of RF has been for understanding a wide range of significant outcomes, research in this area has been hampered by scientific and financial limitations of the scale. Fonagy's RF scale was designed to be used in conjunction with the Adult Attachment Interview (AAI; George, Kaplan, and Main 1985), which requires the entire interview to be taped and transcribed verbatim in order to be coded. These transcriptions typically take between six to eight hours to complete per interview; as a result, it may take up to several weeks to generate an RF score. Dependence on this interview thus prevents the coding system from being applied to a wider range of scenarios. Psychotherapists and process researchers alike could benefit from an RF measure that could be used within sessions.

Additionally, the rating scale is cumbersome and designed to provide only a single score, which limits our understanding of the complexity of

RF and our capacity to examine the psychometrics of the measure (e.g., the factor structure). To improve the validity of this important construct, a more differentiated measure of RF will need to be examined.

Based on the issues discussed above, we developed the Reflective Function Rating Scale (RFRS), 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. The RFRS was developed through an iterative construct validity approach; using Fonagy's manual for scoring RF and other relevant research in the area of mental representations, several subcategories of reflective function were identified to cover a wide range of domains encompassed in the RF theory. In the present study we measure the reliability and validity of the RFRS by comparing its results with RF scores obtained using the AAI.

Method

Participants. As part of a randomized control trial comparing three different treatments for borderline personality disorder, eleven therapists were asked to rate the reflective functioning of 49 patients using the RFRS. Of the 49 participants, 43 (87.8%) were female. Subject age ranged from 18 to 51 years ($M = 30.88$).

Measures. The Adult Attachment Interview (AAI; George, Kaplan, and Main 1985): The AAI is a semistructured interview focused on early attachment relationships. The interviews were administered, audiotaped, and transcribed in accordance with the procedure developed by Main and colleagues and scored using the Reflective Functioning (RF) Scale developed by Fonagy and colleagues (1998). Passages are rated on a scale of 1 to 9, and these scores are then aggregated to provide an overall score for the transcript.

The Reflective Function Rating Scale: The RFRS is a 50-item scale based on Fonagy's manual for scoring RF. Items pertain to various ways in which an individual can demonstrate high or low reflective functioning. Examples are "The patient acknowledges that one can be internally experiencing emotions different from what is being overtly displayed (e.g., I felt sad but didn't want to show that to her)" and "The patient makes spontaneous efforts to clarify confusing aspects of his/her narrative in session." Each item on the scale is rated from 1 to 5.

Results

We conducted a principal component factor analysis with varimax rotation on our sample. Nine main factors with eigenvalues greater than 1 emerged, accounting for 77.26% of the variance, with analysis indicating adequate sampling (KMO 59.5%). However, scree testing, interpretability, and internal consistency all suggested a three-factor solution, which was therefore retained. Internal consistency of the factors indicates that the factor subscales represent cohesive constructs; 6 items were removed during reliability analysis for low alpha.

The first factor included 16 items representing a lack of explicit efforts to tease out mental states underlying behavior ($\alpha = .94$) as evidenced by distortions and defensive reactions to bids for reflective functioning (e.g., "S/he tends to become overtly defensive when asked to reflect on his/her behavior"); the second factor included 14 items representing an awareness of the nature of mental states ($\alpha = .95$; e.g., "S/he is able to reflect on how his/her behavior may have influenced the behavior of another person"); and the third factor consisted of 13 items representing a recognition of the developmental aspects of mental states ($\alpha = .92$; e.g., "S/he recognizes that attitudes and perspectives may be influenced by the generation one was raised in").

As for the relationship between factors, as shown in Table 1, Factor 1 (Defensive/Distorted) was significantly negatively correlated with Factor 2 (Awareness of Mental States), $r = -.57$, $p < .001$, and Factor 3 (Developmental), $r = -.41$, $p < .004$. Factor 2 was significantly positively correlated with Factor 3, $r = .81$, $p < .001$.

The factor scores were then correlated with a subset of 32 RF scores obtained from the AAI ($M = 3.04$, $SD = 1.03$). RF was found to be significantly related to Factor 1 (Defensive/Distorted), $r = -.37$, $p < .04$, and Factor 2 (Awareness of Mental States), $r = .54$, $p < .001$; but it was not related to Factor 3 (Developmental), $r = .25$, $p < .16$.

Discussion

Our preliminary findings indicate reliability and validity of the RFRS by demonstrating that its factor subscales represent cohesive constructs and by relating it in predicted ways to RF scores obtained from the AAI. Therapists' ratings of their patients' reflective capacity, specifically their explicit efforts to tease out mental states underlying behavior (or lack thereof) and their awareness of the nature of mental states, significantly related to the reflective capacity exhibited by the patient on the AAI.

Table 1. Correlation between RF on AAI and RFRS factors

	RF Score on AAI	Factor 1: Defensive	Factor 2: Aware of MS	Factor 3: Developmental
RF Score on AAI	—	-.37*	.54**	.25
Factor 1: Defensive/Distorted		—	-.57**	-.41**
Factor 2: Awareness of Mental States			—	.81**
Factor 3: Developmental				—

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

However, a very weak relationship was found between the reflective capacity exhibited by the patient on the AAI and therapists' ratings of their patients' capacity to recognize the developmental aspects of mental states.

While this study has a number of limitations, including a small sample size and strong correlations between factor subscales, it expands our understanding of the complex RF construct in many important ways. Further, the RFRS measure allows for more timely and more psychometrically sophisticated assessments of reflective functioning. Future studies should further examine the factor structure of RF scores obtained from the AAI to determine whether this scale has a factor structure similar to that of the RFRS.

REFERENCES

- AINSWORTH, M.S., BLEHAR, M.C., WATERS, E., & WALL, S. (1978). *Patterns of Attachment: A Psychological Study of the Strange Situation*. Hillsdale, NJ: Erlbaum.
- FONAGY, P., LEIGH, T., STEELE, M., STEELE, H., KENNEDY, R., MATTOON, G., ET AL. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting & Clinical Psychology* 64:22–31.
- STEELE, M., STEELE, H., LEIGH, T., KENNEDY, R., MATTOON, G., & TARGET, M. (1995). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In *Attachment Theory: Social, Developmental and Clinical Perspectives*, ed. S. Goldberg, R. Muir, & J. Kerr. New York: Analytic Press, pp. 233–278.

- & TARGET, M. (1998). REFLECTIVE FUNCTIONING MANUAL: VERSION 5.0 for application to the Adult Attachment Interview. Unpublished manual, University College London.
- & TARGET, M. (1996). PLAYING WITH REALITY: I. Theory of mind and the normal development of psychic reality. *International Journal of Psychoanalysis* 77:217–223.
- GEORGE, C., KAPLAN, N., & MAIN, M. (1985). The Adult Attachment Interview. Unpublished manuscript, Department of Psychology, University of California.
- GRIENENBERGER, J., KELLY, K., & SLADE, A. (2005). Maternal reflective functioning, mother-infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attachment & Human Development* 7:299–311.
- LEVY, K.N., MEEHAN, K.B., KELLY, K.M., REYNOSO, J.S., WEBER, M., CLARKIN, J.F., & KERNBERG, O.F. (2006). Change in attachment patterns and reflective function in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *Journal of Consulting & Clinical Psychology* 74:1027–1040.
- REYNOSO, J.S., LENZENWEGER, M.F., CLARKIN, J.F., & KERNBERG, O.F. (2005). The relation of reflective functioning to neurocognitive functioning in patients with borderline personality disorder. *Journal of the American Psychoanalytic Association* 53:1305–1309.

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