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Mentalization, attachment, and defense mechanisms: a Psychodynamic Diagnostic Manual-2-oriented empirical investigation

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ABSTRACT

Mentalizing capacities depends on the quality of primary attachment interactions with caregivers who thinks of the child as a subject with mental states. Operationalized as reflective functioning, mentalization is crucial for regulating emotions and developing of a coherent sense of identity, for interacting with individuals making sense to own and others mental states, and for distinguishing internal and external realities without distortions. Although the clinical literature on interplay between mentalization, attachment, and emotional regulation is rich, the empirical research is limited. This study sought to explore connections between reflective functioning, attachment styles, and implicit emotion regulation, operationalized as defense mechanisms, in a group of depressive patients. Twenty-eight patients were interviewed using the *adult attachment interview* (AAI) and diagnosed using the *Psychodynamic Chart-2* of the *Psychodynamic Diagnostic Manual, Second Edition*. The *reflective functioning scale* and the *defense mechanisms rating scale Q-sort* were applied to AAI transcriptions to assess reflective functioning and defensive profile. Patients with secure attachment showed significantly higher levels in reflective functioning and overall defensive functioning as compared to those with insecure attachment. Good reflective functioning and secure attachment correlated with mature defenses and specific defensive mechanisms that serve in better regulating affective states. Overall, the relationship between mentalization, attachment and emotion regulation lay the foundations for the delineation of defensive profiles associated with attachment patterns and reflective functioning in depressive patients. The systematic assessment of these psychological dimensions with gold-standard tools may help in tailoring personalized therapeutic interventions and promoting more effective treatments.

Key words: Mentalization; attachment; defense mechanisms; Psychodynamic Diagnostic Manual-2; defense mechanisms rating scale Q-sort.

Introduction

Mentalization can be defined as the individual's imaginative capacity to understand and interpret-both implicit and explicitly-behavior in self and others as conjoined with intentional mental states, such as motives, affects, desires, beliefs, goals, and needs (Fonagy, Gergely, Jurist,

& Target, 2002). It allows to symbolize human experiences, enabling individuals to use thoughts and ideas to represent, describe and express their internal life, as well as deeply understand the intersubjective nature of social relationships (Bouchard *et al.*, 2008). This form of representational mental activity is crucial for emotion regulation and development of a coherent sense of identity. Moreover, it helps in interacting with others making sense of what occurs in one's own and others' minds, in distinguishing between internal and external reality (*e.g.*, cognitive and emotional processes), and in building connection with real-world (Bateman & Fonagy, 2016; Fonagy, Steele, Steele, Higgitt, & Target, 1994).

The construct of mentalization was founded within attachment theory and operationalized as reflective functioning (RF) (Fonagy, Target, Steele, & Steele, 1998). The individual develops mentalizing capacities in early infancy and their progression depends on the quality of primary attachment interactions with caregivers who thinks of the child as a subject with mental states (Bowlby, 1973). From this perspective, a close, warm, and affectively attuned infant-caregiver relationship allows the development of a secure attachment and provides the ideal condition for fostering an optimal mentalization. Conversely, caregivers' failure in sensitiveness and responsiveness to the child's need of protection and support may evolve into insecure attachment and hinder the development of mentalizing abilities (Fonagy *et al.*, 2002).

Maladaptive caregiving of parents who cannot reflect empathically on the child's inner experience and respond accordingly may promote severe distortions in child's mentalizing ability, such as hypermentalization (*e.g.*, overinterpretive mental state reasoning), vulnerability to mentalizing capacity breakdowns, and impairments in cohesive and integrated sense of self, adaptive capacities in affective regulation, and stable and mutually satisfying interpersonal relationships (Lingiardi & Bornstein, 2017; Mikulincer & Shaver, 2018).

Child-caregiver interactions are encoded and internalized by the child in '*internal working models*' (IWM), which are mental representations of the attachment figure, the self, and their relationship that predict child's later social and emotional outcome (Bowlby, 1969, 1980; Eagle, 2013; Fonagy, Steele, & Steele, 1991; Main, Kaplan, & Cassidy, 1985).

Research has highlighted a strong connection between attachment and mentalization. Insecure attachment is related to RF deficits (Bouchard *et al.*, 2008; Fonagy & Target, 1997, 1998; Nazzaro *et al.*, 2017), which together increase the risk to develop several psychopathological conditions (*e.g.*, anxiety and depressive disorders) and personality syndromes (*e.g.*, Antonsen, Johansen, Rø, Kvarstein, & Wilberg, 2016; Bouchard *et al.*, 2008; Calati, Oasi, De Ronchi, & Serretti, 2010; Fischer-Kern *et al.*, 2010; Katznelson, 2014; Levy *et al.*, 2006; Müller, Kaufhold, Overbeck, & Grabhorn, 2006; Taubner, White,

Zimmermann, Fonagy, & Nolte, 2013). Moreover, parental RF appears to be involved in the intergenerational transmission of attachment (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005; Stacks *et al.*, 2014).

In light of what above described, the link between RF, attachment, and implicit emotion regulation seems rather clear. Emotion regulation strategies serve in mitigating distress through volunteer (explicit emotion regulation) or automatic (implicit emotion regulation) modification of the intensity, duration, and type of the experienced emotion (Gross & Thompson, 2007; Gyurak, Gross, & Etkin, 2011). Research demonstrated that both explicit and implicit emotion regulation strategies are essential for psychological well-being (Di Giuseppe, Ciacchini, Pirulli, Nepa, & Conversano, 2019; Gyurak *et al.*, 2011), although the adequacy of implicit emotion regulation, such as mature defense mechanisms, plays a key role in the overall adaptiveness of individual psychological functioning (Di Giuseppe, Gennaro, Lingiardi, & Perry, 2019; Maffei *et al.*, 1995).

Defense mechanisms are defined as unconscious mechanisms that mediate the individual's reaction to emotional conflicts or external situations derived from difficulties in adapting inner needs, impulses, desires and thoughts to real world (American Psychiatric Association, 2013; Perry, 2014). They serve to eliminate or attenuate negative sensations (distress, anxiety, insecurity, fear, *etc.*) connected to dangerous or threatening events or emotional experiences, real or imaginary (Olson, Perry, Janzen, Petraglia, & Presniak, 2011; Vaillant, 1992). According to the gold-standard classification of defense mechanisms (Di Giuseppe, Perry, Petraglia, Janzen, & Lingiardi, 2014; Di Giuseppe *et al.*, 2020; Perry, 1990), each of the thirty defense mechanism holds specific definition and function that contribute to determine the individual defense style. Defense mechanisms are hierarchically organized into seven levels of adaptiveness, ranging from least to most mature (Table 1). At the more immature levels, defenses act a massive image distortions and withdrawn of charged feelings, while more adaptive defense levels allow higher awareness of feelings, ideas, thus maximize gratification and resilience (Di Giuseppe, Prout, Fabiani, & Kui, 2020). Immature defense mechanisms are often associated to various levels of severity of psychological functioning and different psychopathological conditions, especially personality disorders (*e.g.*, Di Giuseppe, Gennaro *et al.*, 2019; Hilsenroth, Callahan, & Eudell, 2003; Lingiardi *et al.*, 1999; Oasi *et al.*, 2017; Perry, Presniak, & Olson, 2013). On the other hand, mature defense mechanisms are associated with physical and psychological health and better adjustment (Hayden *et al.*, 2021; Martino *et al.*, 2020).

The relationship between attachment, defense mechanisms and psychological distress in clinical and non-clinical populations has been neglected in empirical

research. In one study, Cramer and Kelly (2010) found that levels of insecure attachment style and defenses of denial were higher among parents abusing their children. Another research revealed that anxious attachment and immature defenses were significant predictors of post-natal depression (McMahon, Barnett, Kowalenko, & Tennant, 2005). Moreover, defense mechanisms may mediate the significant association between insecure attachment and alexithymic traits in youth population (Besharat & Khajavi, 2013). Consistent with this study, Laczkovics and colleagues (2018) supported the mediating role of immature defenses on the association between insecure attachment and psychopathology, suggesting that attachment had a direct impact on defense mechanisms, which in turn conveys the effects of insecure attachment on psychopathology. A recent research pointed out that insecure attachment is related to primitive defenses of denial, splitting, and projection (Prunas, Di Pierro, Huemer, & Tagini, 2019). Another study highlighted that secure attachment and adaptive defenses have a crucial impact in providing individuals exposed as children to intimate partner violence (IPV) with ways to survive their traumatic environments (Bain & Durbach, 2018).

According with these findings and clinical literature (cfr., Bowlby, 1973, 1980), we assume that attachment security is associated to mature psychological defenses intervening to modulate and reduce intense painful feelings and impact of negative experiences or events (Ciocca *et al.*, 2020; Kobak & Bosmans, 2019; Malik, Wells, & Wittkowski, 2015). Similarly, it is reasonable to consider a strong connection between RF and defenses taking into account that they help in regulating emotional states activated within interpersonal relationships and influenced by mental procedures and representations from past meaningful relational experiences (Eagle, 2013). Moreover, consistent with the framework of the M Axis of the Psychodynamic Diagnostic Manual, Second Edition (PDM-2) (Lingiardi & Bornstein, 2017), it is important to recognize that these capacities of mental functioning are interconnected and based on specific and integrated set of psychological processes (Lingiardi, McWilliams, Bornstein, Gazzillo, & Gordon, 2015).

Starting from these premises, the present study sought to explore the connections between all these relevant dimensions of psychological functioning in a group of depressive patients. More in detail, this research focused on two main aims:

Hypothesis 1: Identify whether attachment security was characterized by higher RF and higher overall defensive functioning (ODF) [see defense mechanisms rating scale Q-sort (DMRS-Q)'s description among 'Measures']. We hypothesized that people with secure attachment would show significantly higher RF and ODF as compared to insecure individuals.

Hypothesis 2: Investigate the associations between RF, attachment security/insecurity, and specific defense mechanisms. We hypothesized that high-adaptive defenses would be positively associated with both high RF and secure attachment, while disavowal, image-distorting defenses, and action defenses would be positively related to low RF and insecure attachment.

Methods

Participants' sampling

The sample consisted of 28 patients recruited from two national counselling centers (Rome, Italy) between June 2019 and February 2020 (before the outbreak of the coronavirus disease 2019 pandemic). The inclusion criteria were as follows: i) being at least 18 years old; ii) not having a diagnosis of organic syndrome, psychotic disorder or any syndrome with psychotic symptoms that could complicate the assessment of any variable in the study; and ii) not being on drug therapy. Clinicians (all of psychodynamic orientation) were direct to briefly describe to their patients the rationale of the research project on psychological assessment. All the patients indicated their willingness to participate in the study on a volunteer basis and without remuneration. They provided written informed consent. The patients were taken once-a-week psychotherapy treatment and therapists provided basic demographic and diagnostic data. The study protocol received ethics approval from the Research Ethics Committee of the Department of Dynamic and Clinical Psychology, and Health Studies, Sapienza University of Rome.

Table 1. Defense levels and their corresponding defenses.

Defense level	
Highly adaptive (mature)	Affiliation, altruism, anticipation, humor, self-assertion, self-observation, sublimation, suppression
Obsessional	Isolation of affect, intellectualization, undoing
Neurotic	Repression, dissociation, reaction formation, displacement
Minor image-distorting (narcissistic)	Devaluation (of self and others' images), idealization (of self and others' images), omnipotence
Disavowal	Denial, projection, rationalization, autistic fantasy
Major image-distorting (borderline)	Splitting (of self and others' images), projective identification
Action	Acting out, help-rejecting complaining, passive aggression

Patients

The clinical sample was equally distributed among gender. Mean age was approximately 45 years [standard deviation (SD)=4.90, range=39-58]. Twenty-three patients had a Diagnostic and Statistical Manual of Mental Disorders (DSM-5) diagnosis of persistent depressive disorder (dysthymia) and five had a diagnosis of major depressive disorder. Moreover, according to the P Axis of the Psychodynamic Chart-2 (PDC-2) (see the description of the PDC-2 in section 'Measures' of the PDM-2, the level of patients' personality organization was neurotic (mean score of overall personality organization=6.07, SD=1.72). Some patients (N=20) had a personality syndrome (comorbid with psychiatric diagnosis), which was distributed as follow: six depressive, four narcissistic, four borderline, two dependent, two obsessive, one anxious-avoidant and phobic, one hysteric-histrionic, while two patients showed subclinical depressive traits (rating score=3). Concerning the *adult attachment interview* (AAI) classifications distribution, the four-way distribution of states of mind with respect to attachment was as follows: 14 patients were Secure-Autonomous (F), 4 were Preoccupied (E) and 9 were Dismissing (Ds); the remaining 1 participant was Unresolved/disorganized (U/d) with an additional classification as Dismissing. The length of treatment averaged 2.67 months (SD=0.88; range=1-4).

Measures

Clinical questionnaire

We constructed an ad hoc clinician report questionnaire to obtain information about therapists, patients, and their psychotherapies. Clinicians provided basic demographic and professional data, as well as *DSM-5* diagnoses assigned at the intake. Clinicians also furnished data on the therapies, such as length of treatment.

Psychodynamic Chart-2 of the Psychodynamic Diagnostic Manual

The PDC-2 (Gordon & Bornstein, 2015) is a clinician report tool used to guide clinicians in the PDM-2-oriented diagnostic assessment of adults. The PDC-2 starts with Section I: Level of Personality Organization calls for ratings of identity, object relations, level of defenses, and reality testing. Then, the clinician has to provide an overall rating of the personality organization as either 'normal' (healthy), mildly dysfunctional (neurotic), dysfunctional (borderline), or severely dysfunctional (psychotic). Section II: Personality Styles/Syndromes (P Axis) asks the clinician to determine the patient's emerging personality patterns by checking as many relevant patterns as apply; then, the clinician notes the one or two most dominant patterns. For research purposes, each pattern can be given a rating from 1 (severe) to 5 (high functioning). Section III: Mental Functioning (M Axis), which asks the clinician to rate the patient's level of strength or weakness on each of 12 mental

functions on a scale from 1 (severe deficits) to 5 (healthy) and then to provide an overall rating for level of personality severity as the sum of these 12 ratings. Section IV: Symptom Patterns (S Axis) asks the practitioner to describe the patient's main symptom patterns from those that are related to predominantly psychotic disorders, mood disorders, disorders primarily related to anxiety, event- and stressor-related disorders, and so forth. Moreover, the clinician may use DSM or ICD symptoms and codes here. The dominant symptoms are rated on a 5-point scale from 1 (severe) to 5 (mild). Section V: Cultural, Contextual, and Other Relevant Considerations. In the present study, we used only the first two sections of this measure on the personality assessment.

Adult attachment interview

The adult attachment interview (AAI) (George, Kaplan, & Main, 1996) is a semi-structured interview used to assess the individual's 'state of mind' with respect to attachment relationships. The AAI consists of 20 questions asked in a set order with standardized probes. Individuals are asked to describe the overall quality of their childhood relationship with their parents as well as any experiences of loss, rejection, early separation, and maltreatment. The interview requires participants to reflect on their parents' styles of parenting and to consider how their childhood experiences with their parents may have influenced their personality development. The traditional AAI scoring system points to the following attachment classification: secure/autonomous (F), dismissing (Ds), enmeshed/preoccupied (E), or unresolved/disorganized (U/d). The U/d category is assigned a secondary organized classification (F, Ds or E). Previous research has shown that the AAI has remarkable stability and predictive validity (for a review, see Hesse, 2008). Individuals classified as F are able to cope effectively with negative feelings about past experiences and are aware of the value of attachment relationships. On the other hand, E individuals are overwhelmed by anxiety and negative emotions arising from childhood memories. Ds individuals deal with painful feelings related to attachment relationships through 'defensive exclusion' (Bowlby, 1973) of attachment-related memories, idealization of painful relationships or derogation of attachment figures. Individuals with U category show disorganization or confusion with regard to attachment-related loss or trauma.

Reflective functioning scale

The reflective functioning scale (RFS) (Fonagy *et al.*, 1998) is a quantified index of mentalization capacity applied to the transcripts of the AAI (George *et al.*, 1996). It is designed to assess whether subjects are able to understand attachment-related experiences in terms of mental states. The coding system is based on the following dimensions: i) awareness of the nature of mental states (*e.g.*, the fact that mental states can be disguised); ii) explicit effort made to tease out the mental states underlying one's own and others' behavior (*e.g.*, an awareness that different people may ex-

perience different feelings and thoughts in response to the same situation); iii) recognition of the developmental aspects of mental states (e.g., an understanding of age-derived changes in mental states); and iv) recognition of mental states in the interviewer (e.g., guessing that an interviewer may be distressed while listening to an emotionally difficult story). RF is assessed through ratings of the perceived level of reflection made by the individual on the different passages in the AAI, with questions that directly encourage the subject to employ reflective capacities ('demand,' as opposed to 'permit,' questions) carrying more weight. The scores given to subject's statements throughout the interview are weighed together to obtain a final RF score on an 11-point scale ranging from -1 (*negative reflective capacity or antireflective*) to 5 (*ordinary reflective capacity*) to 9 (*exceptionally reflective functioning*). The RFS was validated on the coherence scale of the AAI and shows good interrater reliability when administered by trained raters (Fonagy *et al.*, 1998). Psychometric analysis confirmed the one-factor structure, which also showed good reliability and stability over time (Taubner *et al.*, 2013).

Defense mechanisms rating scale-Q sort

The DMRS-Q (Di Giuseppe *et al.*, 2014) is a computer-based observer-rated measure developed for the assessment of defense mechanisms in clinical setting and based on the gold-standard theory of defense mechanisms (Perry, 1990). The DMRS-Q consists of 150 statements describing 30 defense mechanisms in terms of personal mental states, relational dynamics, verbal and nonverbal expressions, self and others' perceptions that emerge on occasions when the subject experiences internal or external stress or conflict. Raters sorted each statement utilizing a seven-point Likert scale, ranging from least characteristic to most characteristic, which described how each defense pattern contributed to the individual's defensive functioning. After sorting all 150 statements into a seven-ranks forced distribution, the software provides a DMRS-Q report (Figure 1) with: i) a qualitative description of the patient defensive profile, the so called *defensive profile narratives* (DPN); and ii) quantitative scores for the ODF, seven hierarchically ordered defense levels, and 30 defense mechanisms (see Table 1 for a comprehensive description of the hierarchy of defense mechanisms). The DMRS-Q rating procedure is available online at: <https://webapp.dmrs-q.com/login>

Procedure

All patients were assessed with the DSM-5 and PDC-2 of the PDM-2 after 4 initial diagnostic interviews to collect background information, developmental history, and current concerns. In this time, they interviewed with the AAI by two member of the research group. AAI interviews were audio recorded and transcribed verbatim and was coded by two certified AAI coders who were blind to all other study variables. The interrater reliabilities (ICC) of the AAI subscales were of 0.73 and agreement of the two raters on major at-

tachment classification (four-way classification) was 85.7% (with 100% agreement on insecure *vs* secure classification). RF was coded according to the RFS from verbatim transcripts of the AAI by two raters who performed the training trained by H. Steele. The ICC of RF raters was 0.84. Defense mechanisms were assessed from AAI transcripts by two raters trained in the use of the DMRS-Q. Raters' ICC among all DMRS-Q scales was 0.82 on average.

Statistical analysis

The Mann-Whitney U tests were performed to verify differences in RF and ODF between patients with secure attachment *versus* patients with insecure attachment. Bivariate correlations (Pearson's *r*, two-tailed) were carried out to examine the relationship between RF, attachment, and defense mechanisms. All analyses were conducted with SPSS 23 for Windows.

Results

Differences between groups with secure *versus* insecure attachment in reflective functioning and overall defensive functioning

Differences in mentalization (as assessed using the RFS) and defensive functioning (as assessed using the ODF index of DMRS-Q) between patients with secure (N=15) *versus* insecure/disorganized (N=13) attachment were tested using the Mann-Whitney U test. Results showed significant differences between groups in RF (Mann-Whitney $U=3.50$; $P\leq 0.000$, two tailed) and ODF (Mann-Whitney $U=45$, $P=0.016$, two tailed). More in detail, levels of RF and ODF were greater for secure patients ($Mdn_{RF}=5$; $Mdn_{ODF}=5.31$) than for insecure/disorganized patients ($Mdn_{RF}=3$; $Mdn_{ODF}=4.73$).

Relationships among mentalization, attachment and defense mechanisms

Table 2 displays correlations between RF, attachment, and defensive functioning assessed among the whole hierarchy of defense mechanisms.

Results showed that RF was positively associated with the high-adaptive defense level, and negatively associated with minor image distorting, major image distorting, and acting defense levels. Moreover, RF showed positive correlations with the individual defenses suppression, self-observation, affiliation, and undoing, and negative correlations with the individual defenses omnipotence, projection, splitting of self-image, help-rejecting complaining, and acting out. Consistently, attachment security was positively associate with the high-adaptive defensive level and with the individual defenses affiliation and undoing. Secure attachment also showed negative correlations with the individual defenses displacement, projection, splitting of self-image, and acting out.



SOC IO-DEMOGRAPHIC CHARACTERISTICS			
ID	AAI_M1		
Age	49		
Gender	F		
Ethnicity	White		
Marital status	Married		
Children	2		
Degree	-		
Occupation	-		
Physical or mental conditions	Dysthymia		
Additional information	-		

DEFENSIVE PROFILE NARRATIVES - Qualitative results			
Item	Description	Defense mechanism	Defense level
13	The subject keeps unpleasant things vague: he or she has trouble remembering or can't recall specific examples, when at least some should be forthcoming. This may include loss of memory for whole periods of time (e.g. childhood).	REPRESSION	LEVEL 5: NEUROTIC DEFENSES
31	In talking about a meaningful, emotionally charged experience, the subject talks in a detached way, as if he or she is not in touch with the feelings that should surround it.	ISOLATION OF AFFECTS	LEVEL 6: OBSESSIVE DEFENSES
48	When another person tries to clarify a statement made by the subject, the subject says things like 'well, not really' or 'not exactly' followed by qualifications that do not clearly clarify things. Because the subject is wary of committing him or herself to any statement, the listener may be unsure as to the subject's definite opinion.	UNDOING	LEVEL 6: OBSESSIVE DEFENSES
60	Whenever focusing on personal issues or experiences the subject tends to generalize or even discuss things in a logical or scientific way, thereby keeping his feelings and experiences very distant.	INTELLECTUALIZATION	LEVEL 6: OBSESSIVE DEFENSES
81	The subject conveys opinions about something or someone with a series of opposite or contradictory statements, as if uncomfortable with taking a clear stand one way or the other.	UNDOING	LEVEL 6: OBSESSIVE DEFENSES
108	The subject cannot remember certain facts which would normally not be forgotten, such as a distressing incident, reflecting some uneasy feelings about the topic.	REPRESSION	LEVEL 5: NEUROTIC DEFENSES
26	The subject talks about his personal experiences by making general statements that appear accurate but somehow avoid revealing specific personal feelings and reactions.	INTELLECTUALIZATION	LEVEL 6: OBSESSIVE DEFENSES
32	When confronting emotionally important problems, the subject can reflect upon relevant personal experiences and explore emotional reactions. This allows the subject to adjust better to limitations and compromises, possibly leading to more fulfilling outcomes.	SELF-OBSERVATION	LEVEL 7: HIGH-ADAPTIVE DEFENSES
50	When discussing a topic that brings up negative, conflicting feelings, the subject prefers to keep things vague, reflected in very vague, general or inexact statements.	REPRESSION	LEVEL 5: NEUROTIC DEFENSES
83	After the subject has done something that probably results in a feeling of guilt or shame, the subject makes an act of reparation, as if sorry. However, the subject focuses on the act but avoids dealing with the sense of guilt or shame as one would whenever making a normal apology.	UNDOING	LEVEL 6: OBSESSIVE DEFENSES
86	Whenever confronted about his or her own feelings or intentions, the subject avoids acknowledging them by giving a plausible explanation that covers up the real subjective reasons.	RATIONALIZATION	LEVEL 3: DISAVOWAL DEFENSES
107	The subject talks as if emotionally detached from whatever he says about himself or his experiences.	ISOLATION OF AFFECTS	LEVEL 6: OBSESSIVE DEFENSES
120	Whenever discussing something uncomfortable about him or herself, the subject tries to convince someone else of a more positive explanation, as if lying to him or herself about the truth.	RATIONALIZATION	LEVEL 3: DISAVOWAL DEFENSES
140	The subject describes events with good detail, but without mention of any attendant feelings, like a reporter describing the narrative of someone's life, but devoid of personal reactions.	ISOLATION OF AFFECTS	LEVEL 6: OBSESSIVE DEFENSES

QUANTITATIVE SCORES	
Overall Defensive Functioning (ODF)	
ODF	5.35
Defense Levels Scores	
High-adaptive defense level	29.06
Obsessive defense level	24.36
Neurotic defense level	21.79
Minor image-distortion defense level	9.40
Disavowal defense level	10.66
Major image-distortion defense level	1.71
Action defense level	2.99
Individual Defense Scores	
Suppression	4.27

Figure 1. Example of a shortened defense mechanism rating scale-Q (DMRS-Q) report.

Discussion

Empirical research advances have been providing deeper understanding of connections between psychodynamic constructs helped by the development of more and more effective instruments for their assessment. Applying gold-standard tools for testing attachment patterns (AAI),

RF (RFS) and defense mechanisms (DMRS-Q), this pilot study demonstrated the relationship between these psychological constructs in a sample of dysthymic individuals. Taking into account the whole hierarchy of defense mechanisms, our findings lay the foundations for the delineation of defensive profiles associated with specific attachment patterns and RF capacities.

Table 2. Associations among reflective functioning, attachment security/insecurity, defensive levels and mechanisms.

DMRS-Q		RF	Secure/insecure attachment
Defense levels	High-adaptive	0.471*	0.410*
	Obsessional	0.170	0.101
	Neurotic	0.042	-0.195
	Minor-image distorting	-0.419*	-0.305
	Disavowal	-0.353	-0.287
	Major-image distorting	-0.408*	-0.219
	Action	-0.518**	-0.339
Defense mechanisms	Suppression	0.379*	0.331
	Sublimation	0.195	0.192
	Self-observation	0.364	0.284
	Self-assertion	0.417*	0.233
	Humor	0.218	0.147
	Anticipation	0.242	0.330
	Altruism	0.201	0.120
	Affiliation	0.433*	0.538**
	Isolation of affects	-0.188	0.076
	Intellectualization	-0.091	-0.087
	Undoing	0.449*	0.379*
	Repression	0.245	-0.093
	Dissociation	-0.305	-0.257
	Reaction Formation	0.295	0.328
	Displacement	-0.307	-0.410*
	Devaluation of self-image	-0.278	-0.336
	Devaluation of others' image	-0.306	-0.302
	Idealization of self-image	-0.268	-0.149
	Idealization of others' image	-0.252	0.323
	Omnipotence	-0.444*	-0.317
	Denial	-0.170	-0.211
	Rationalization	-0.160	-0.055
	Projection	-0.595***	-0.525**
	Autistic fantasy	-0.127	-0.039
	Splitting of self-image	-0.643***	-0.518**
	Splitting of others' image	-0.076	-0.077
Projective identification	-0.304	-0.135	
Passive aggression	-0.262	-0.142	
Help-rejecting complaining	-0.498**	-0.331	
Acting out	-0.559**	-0.396*	

DMRS-Q, defense mechanism rating scale-Q sort; RF, reflective functioning. Attachment (secure coded=1, insecure/disorganized coded=0); *P≤0.05; ** P≤0.01; ***P≤0.001.

Our first hypothesis, that people with secure attachment would show significantly higher RF and more adaptive defensive functioning than insecure individuals, was fully confirmed by the findings. Consistent with literature and empirical contributions in the field (Besharat & Khajavi, 2013; Boldrini, Lo Buglio, Giovanardi, Lingiardi, & Salcuni, 2020; Malik *et al.*, 2015; Bouchard *et al.*, 2008; Fonagy & Target, 1997, 1998; Hörz-Sagstetter, Mertens, Ispording, Buchheim, & Taubner, 2015; Nazzaro *et al.*, 2017), the results indicate the shared line of development of two very important aspects of psychological functioning, such as mentalization and emotion regulation, that take place in early relationships with sensitive and responsive caregivers as main sources of the development of secure internal working models of attachment (Bowlby, 1969; Carrère & Bowie, 2012; Fonagy & Target, 1998; Hershenberg *et al.*, 2011). Conversely, we confirmed Besharat and Khajavi's idea (2013) that massive use of immature defense mechanisms in insecure attachment may be aimed to react against mental distress by blocking awareness of negative emotions.

At a deeper level of inquiry, the results fully confirmed our second hypothesis of a positive association between RF, secure attachment and adaptive defense mechanisms. This research found the use of mature defense mechanisms in people with secure attachment and good RF, such as *affiliation* and *undoing*. Looking at the functions of these defenses, we notice that affiliation enhances personal coping skills and attachment needs satisfaction by seeking support from others, while undoing minimizes the distress caused by uncomfortable feelings by expressing a series of opposite affects, impulses, or actions (*e.g.*, misdeeds followed by acts of reparation) in order to camouflage the subject's primary feeling or intention (Perry, 1990).

Conversely, the use of immature-depressive defenses, in particular *projection*, *splitting of self-image*, and *acting out*, were strongly related to poor RF and insecure attachment. These defensive mechanisms protect the individual from awareness of internal conflict and external stressors by attributing his or her own unacknowledged feelings, impulses, or thought to others (projection), by failing to integrate the positive and negative qualities of the self into cohesive image (splitting of self-image), and by expressing of intolerable feelings in impulsive behaviors without prior thought (acting out). These findings add empirical evidences to previously reported correlation between secure/insecure attachment and mature/primitive defense mechanisms (Besharat & Khajavi, 2013; Ciocca *et al.*, 2020; Cramer & Kelly, 2010; Kobak & Bosmans, 2019; McMahon *et al.*, 2005; Prunas *et al.*, 2019).

In addition, our results showed that good levels of RF was associated with higher use of *self-observation*, *self-assertion*, and *suppression*, which are all mature defenses that helps the individual in dealing with internal conflicts or external stressors by recurring to introspective thinking, direct expression or feelings and ideas, or voluntarily temporarily

avoiding thinking about disturbing problems, in order to maximize gratification and adjustment. In particular, self-observation allows the person to make optimal adaptation to the demands of external reality based on having an accurate view of one's own affects, wishes and impulses, and behavior. Moreover, we found that RF was negatively associated to image-distorting and action defense levels and to as individual defenses of omnipotence and help-rejecting complaining, supporting the relevant interplay between mentalization and emotion regulation. These results suggest that the capacity to understand and interpret self and others' behaviors as conjoined with intentional mental states (Fonagy *et al.*, 2002) is strongly related to the ability to deal with one's feelings, desires, and thoughts without recurring to self and others' images distortion and impulsive withdrawal of intolerable feelings.

Taking together these findings, the primacy of interpersonal dimension and the relationship between attachment, RF and defense mechanisms become more evident. Attachment theory (Bartholomew & Horowitz, 1991; Bowlby, 1973; Collins & Read, 1990; Mikulincer, 1995) often linked attachment security to positive perceptions of the self and others, and insecure attachment patterns to low self-esteem and negative expectations about the others. In our sample the security of attachment and good mentalization skills were related to mature defenses that frame a safe and balanced relationship with the self (*self-assertion* and *self-observation*), but also indicate the capacity to acknowledge the trustfulness of the other and the possibility to rely on others as a resource (*affiliation*).

The present study also presented some limitations. First, the sample size was relatively small, and therefore generalization must be drawn with caution. Further research involving larger stratified samples should be pursued to confirm these associations. Second, due to the cross-sectional nature of the research, only exploratory analyses of associations between the studied variables were possible. Longitudinal studies should be designed to gain insight on how defense mechanisms, attachment patterns and RF might impact the adjustment of dysthymic patients during and after psychological interventions. Finally, RF and defensive mechanisms were evaluated using the same source of the attachment assessment (the AAI transcripts). Further studies should use mixed method (*i.e.*, interviews and self-reports) to have a broader assessment of these variables.

However, to our knowledge, the present study is the first to have studied the association between defenses and mentalizing capacity (assessed with gold-standard tools), taking into account the link with the attachment. Our findings are consistent with the diagnostic framework of the PDM-2 and have significant implications from both the theoretical and clinical perspectives (Hilsenroth, Katz, & Tanzilli, 2018).

The strong relationship between two largely, but separately, studied constructs as mentalization and emotion

regulation suggests new directions for bridging these fields of study, for example by conceptualizing mentalizing ability as peculiar high-adaptive defensive patterns (*i.e.* affiliation, self-observation and self-assertion). Furthermore, the importance of a broad assessment of these constructs highlights the need of developing tailored interventions for depressed patients, informed by the use of specific defense mechanisms and their relations with insecure attachment and mentalization deficits.

In particular, psychological interventions aimed at preventing and addressing depressive problems should focus on the interrelation between attachment insecurity, low RF and the use of immature-depressive defenses. Thus, it might be useful to first establish with patients a secure and trustful relationship (Fonagy, Luyten, Allison, & Campbell, 2019) in which tackling the difficulties related to insecure internal working models of attachment (*e.g.* lack of trust in others, problems in emotion regulation, low levels of self-esteem; see Bowlby, 1973), at the same time encouraging the patients to open up and value their resources, empowering the self-image and providing a positive relationship in which to improve the relationship with the other.

Additionally, within a good therapeutic relationship (informed on these psychological dimensions) patients can increase their mentalizing abilities and learn to better symbolize their psychic contents, moving out from the immature defensive dimensions of acting-out and help-reject complaining to a more mature capacity for self-observation and expression of one's suffering (Hoglend & Perry, 1998; Conversano & Di Giuseppe, 2021).

As suggested by previous studies (*e.g.*, Kobak & Bosmans, 2019; Mikulincer & Horesh, 1999), this research supports that the joint effect of high RF, secure attachment, and mature defense mechanisms may help stabilizing the mental health of patients, helping them regulating better their emotions and developing positive representations of the self and the others.

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