

Adverse experiences in childhood: association with metacognition, personality disorders and distress

Ilaria Riccardi^{1,2}, Elena Bilotta^{1,2}, Luigi Leone³, Giuseppe Nicolò^{1,2}, Michele Procacci^{1,2}, Antonio Semerari^{1,2}, Antonino Carcione^{1,2}

¹ Third Centre of Cognitive Psychotherapy, Rome, Italy; ² Italian School of Cognitive Psychotherapy (SICC), Rome, Italy; ³ Department of Social and Developmental Psychology, Sapienza University of Rome, Italy

SUMMARY

Objectives

Several studies provided evidences that Personality Disorders (PDs) are characterized by an impairment in the abilities to reflect on one's and others' mental state. These abilities have been often named as metacognition or mentalization. There are also evidences that adverse experiences in childhood (ACE) (abuse, neglect, maltreatment) affected metacognition and are associated to PDs and symptom distress. The present study aims to explore metacognition, distress and severity of personality pathology in relation to the presence or absence of adverse experiences in childhood (ACE) in a sample of 373 outpatients diagnosed having a PDs. The hypothesis was that metacognition is most impaired in patients that experienced adversities in childhood, as there is higher symptoms distress and major personality impairment. The metacognitive Differentiation and Integration sub-functions are hypothesized to be more compromised in ACE group than in the no-ACE one.

Methods

All the patients have been scored using SCID-II, Metacognition Assessment Interview, SCL-90-R. ACE has been detected through a clinical interview. In order to test the associations among metacognition, symptoms distress (GSI-SCL-90-R) and personality severity (number of SCID-II criteria) with ACE, we run a series of ANOVAs using the dichotomous ACE variable (0 = no ACE; 1 = at least 1 ACE) as the grouping variable.

Results

Results confirmed that metacognition is more impaired, symptoms distress is higher and personality is more compromised in ACE group. The metacognitive Differentiation and Integration sub-functions are the most compromised.

Conclusions

The study is a contribute to explore the association between trauma, metacognition and personality disorders and provide suggestions to further studies to focus on pathways leading to the comprehension of impact of ACE on psychopathology.

Key words: adverse childhood experiences, trauma, metacognition, personality disorders

Received: November 10, 2019

Accepted: January 13, 2020

Correspondence

Antonino Carcione

Third Centre of Cognitive Psychotherapy, via
Ravenna 9, 00161 Rome, Italy
E-mail: carcione@terzocentro.it

Conflict of interest

The Authors declare no conflict of interest

How to cite this article: Riccardi I, Bilotta E, Leone L, et al. Adverse experiences in childhood: association with metacognition, personality disorders and distress. Journal of Psychopathology 2020;26:46-53. <https://doi.org/10.36148/2284-0249-366>

© Copyright by Pacini Editore Srl



OPEN ACCESS

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

Introduction

Several authors agree that personality disorders (PDs) are characterized by an impairment in the ability to understand and reflect about one's one and/or others' mental states¹⁻⁷, often defined as *mentalization*^{4,8,9} or *metacognition*¹⁰⁻¹³. These constructs are referred in numerous studies as similar concepts, so there is a broad consensus indicating that they refer to almost the same psychological function^{5,14,15}. In this paper, we use the term *metacognition* operationalised as the set of abilities necessary for 1) identifying mental states and ascribing them to oneself and others

on the basis of facial expressions, somatic states, behaviour and actions; 2) reflecting on and reasoning about mental states; 3) using information about mental states to make decisions, solve problems or psychological and interpersonal conflicts and cope with subjective suffering¹⁶. However, along the paper we can use quite indifferently metacognition, mentalization or reflective function referring to any reflection and reasoning of individuals on their own and others' mental states. Semerari et al.⁵ (2014) supported evidence that metacognition is specifically impaired in PDs if compared to a clinical sample of no-PD patients and that dysfunction is significantly correlated to the severity of personality pathology (measured as the number of criteria met at the *Structured Clinical Interview for DSM-IV - SCID II*). Carcione et al.⁷ consider metacognition as a core aspects of personality disorders and found that poor metacognition is related to the severity of personality pathology, and that increase of metacognition predicts the improvement in personality dysfunction, symptom distress, interpersonal and psychosocial functioning. In particular Semerari et al.^{6,10} and Carcione et al.⁷ found that the ability to differentiate between fantasy and reality (i.e. Differentiation) and the ability to form coherent narrative and to integrate mental states (i.e. Integration) were the most compromised in PDs. Several studies have also confirmed that Adverse Childhood Experiences (ACE) are highly predictive for the development of a Personality Disorder (PD) in adulthood¹⁷⁻¹⁹.

The development of these abilities has been correlated to caregiving or environmental disruptions, as severe abuse, neglect or maltreatment occurred in childhood²⁰. In fact, children with a history of maltreatment exhibit significantly poorer reflective abilities compared to non-maltreated.

Other authors have underlined that ACE leads to a disorganization of attachment, causing difficulties in the recognition of emotions and, above all, in the ability to form coherent representations of oneself and others^{21,22}. There is evidence that deficits in mentalization in children are associated with low levels of parental mentalization, abuse and neglect²³⁻²⁶. Mentalization has also been found to mediate the relationship between abuse and externalizing difficulties in adolescents²⁷.

Summing up, ACE show an impact on the development of individuals' ability to identify and reflect on their own and other people's mental states²⁸ and this lack of awareness would prevent the development of good skills to master suffering and interpersonal conflicts¹³. Vice versa, the development of good reflective abilities despite exposure to adverse life events seems to be associated to most resilience¹⁵, and to a better recovery²⁹. However, despite these studies showing

association between ACE and impairment of reflective abilities, the results are not seeming definitive. In fact, for example, some studies examining community samples of women with histories of childhood maltreatment do not show clear dysfunctions^{30,31}.

Furthermore, there is evidence that specific adverse event can be associated with reflective abilities, psychopathology or emotional regulation. Honkalampi et al.³² found that among patients with Major Depression, only early experiences of emotional and physical abuse and neglect are associated with difficulties in describing feelings in adulthood. Zlotnick et al.³³ provided evidence that in an outpatient sample a greater severity of emotional neglect and physical neglect, rather than abuse, was significantly related to higher levels of alexithymia.

However, adverse experiences are not supposed to impact only on reflective abilities. Large evidence supports the idea that ACE impact on general and mental health throughout the lifespan^{34,35}. Concurrently with metacognition and mentalization, also ACE have been associated with PDs, but the results are not fully explaining. An interesting and extensive paper by Hengartner et al.³⁶ points out that traumatic experiences in childhood are not enough to cause a PD, but can be also relevant – and in some cases even more – socio-economic variables, poverty, school climate, divorce etc. The authors also suggest that childhood adversity impacts PDs in a dose-response relationship. Furthermore, Kessler et al.³⁷ provide evidence that childhood adversities have strong associations with all classes of psychiatric disorders, and not specifically with PDs. We can agree with Samuels³⁸ that there is still a need for others studies about PD risk factors in the general population.

Considering all these observations, we can argue that the associations among trauma, reflective abilities and PDs are not clear. The aim of this study was to explore metacognition, distress and severity of personality pathology in relation to the presence or absence of ACE. We hypothesized that :1) metacognition, 2) personality pathology and 3) symptom distress were most impaired in group that experienced adverse events in childhood. Specifically, we assumed that differentiation and integration functions were the most associated to ACE as result of difficulties to manage different representations of oneself and others' and to elaborate a coherent narrative of traumatic events.

Materials and methods

Participants

The sample consisted of 373 individuals who searched for treatment in an Italian outpatient clinic between 2015 and 2019. The mean age of the sample was 32.19

TABLE I. Characteristics of the sample.

N		Gender						Age M(SD)			
373		166 M (44.5%)						32.19 (11.13)			
		207 F (55.5%)									
Percentage of diagnosis for personality disorders											
AV	DEP	OBS	PA	DE	PAR	ST	HIS	NAR	BDL	AS	
4.8	4.8	24.4	14.2	3.5	7.5	0.3	0.3	11.3	26.0	2.9	

M = Male; F = Female; AV = Avoidant PD; DEP = Dependent PD; OBS = Obsessive PD; PA = Passive-Aggressive PD; DE = Depressive PD; PAR = Paranoid PD; ST = Schizotypal PD; HIS = Histrionic PD; NAR = Narcissistic PD; BDL = Borderline PD; AS = Antisocial PD.

(SD = 11.13), ranging from 18-65 years. 166 participants (44.5%) were male and 207 (55.5 %) were female. All participants met DSM-IV-TR³⁹ diagnostic criteria for PD (SCID-II)⁴⁰. Inclusion criteria consisted of patients with at least one PD (including those with histories of suicidal attempts or self-harm). Exclusion criteria comprised substance dependence, psychotic disorders, bipolar I disorder, delirium, dementia, or mental retardation. Individuals who were enrolled in the study provided written informed consent. Table I shows demographic and diagnostic characteristics of the study sample and percentage of PD diagnoses.

Instruments and measures

Adverse Childhood Experiences (ACE)

To detect Adverse Childhood Event (ACE) we used a method similar to the one suggested by Chiesa & Fonagy¹⁸ in a relevant study. Through an extensive standardized anamnestic interview, which detects information similar to the Cassel Baseline Questionnaire⁴¹, conducted by a psychologist and a senior psychiatrist, the presence/absence of experiences of sexual abuse, neglect and violence/physical abuse was detected in the pre-treatment phase. We used Chiesa & Fonagy's¹⁸ criteria to classify ACE: *neglect* has been defined as the lack of parental support (between 0 and 16 years) indicated by a separation from a primary caregiver (usually the mother or father) over 1 year; *sexual abuse* has been defined as pre-adolescent sexual contact (usually under 14 years) with an adult or forced and violent sexual violence, even after puberty; *physical violence/maltreatment* has been defined as physical or psychological abuse by the caregiver. Psychological abuse includes rejection, hostility and contempt by caregivers or even cruel and sadistic behaviours^{42,43}. As Chiesa and Fonagy¹⁸ point out in their paper, all these definitions agree with those suggested by Bifulco, Brown, & Harris⁴⁴ in the Childhood Experiences of Care and Abuse Interview coding system (CECA).

A binary variable (presence = 1; absence = 0) was created when detecting anamnestically these events.

In this work, a total score was created, without distinguishing the type of experience. Therefore, we created an index scoring from 0 to 3, where 0 corresponded to the absence of adverse experiences; > 1 at least one type of event, while 3 corresponded the presence of three adverse experiences.

*The Structured Clinical Interview for DSM-IV*⁴⁰ was used to obtain diagnostic Axis-II profiles on the basis of the criteria of the DSM-IV³⁹ (American Psychiatric Association, 1994), which yields 11 different categories of PD diagnoses. In this study, satisfactory inter-rater reliability was found in the application of the SCID-II. 20 SCID-II were rated twice; internal consistency of traits of PDs ranged from 0.71 and 0.89 for the majority of the PD diagnoses; only four PDs (obsessive-compulsive, dependent, schizotypal, and passive-aggressive) had alphas above .60. Inter-rater reliability was adequate for both trait scores (a two-way mixed absolute agreement model for ICCs ranged between 0.87 and 0.99, mean = 0.94) and categorical diagnoses (average $k = 0.89$).

The Symptom Checklist-90-R. The SCL-90-R⁴⁵ is a 90 item self-report inventory designed to reflect the psychological symptom patterns of psychiatric and medical patients. It is a measure of current (state) psychological symptom status. The SCL-90-R measures nine primary symptom dimensions and generates an estimate of global psychopathology, the Global Severity Index (GSI), which has been adopted in the current study as a measure of symptoms distress. The scale showed good reliability ($\alpha = 0.97$).

The Metacognition Assessment Interview (MAI). The MAI^{46,47} is a semi-structured clinical interview designed to elicit and evaluate metacognitive abilities of the participant, in a brief narrative of a psychologically significant experience or event. During the interview, the participant is requested to describe the most troubling interpersonal experience of the previous six months, a time frame selected in order to facilitate recall and to permit test-retest, avoiding recall biases, in the evaluation of changes during psychotherapy.

The reported experience must be autobiographical, personal, and it must involve another person, so that ability to understand the mental state of others can be evaluated. Once the description of the episode is completed, the interviewer asks a list of questions, divided into four modules, to elicit and evaluate the 16 basic facets constituting metacognitive sub-functions (four facets for each sub-function). The interviewer assigns to each of the 16 basic facets a score ranging from 1 to 5, using a Likert scale. For each sub-function the score ranging from 4 to 20, for the MAI global from 16 to 80. The metacognitive functions assessed by the MAI are: Monitoring (MON), Integration (INT), Differentiation (DIF), Decentration (DEC) and Global score. Monitoring (MON) is the ability to identify and label the components of our mental states in terms of emotions, thoughts, motivations and desires. People who can monitor effectively find it easy to give appropriate answers to questions such as 'What do you think?' and 'How do you feel?'. Impairment of this function compromises both the individual's ability to describe his/her internal states and the ability to explain reasons and motivations underlying his/her behaviour. Integration (INT) refers to the more general capacity of individuals to reflect upon different mental states, identifying internal contradictions, conflicts and patterns. This metacognitive function allows us to organise mental contents adaptively in terms of significance and subjective priority and thus to maintain behavioural coherence. An integration disorder makes mental processes and behaviours contradictory and unstable. Differentiation (DIF) indicates the ability to recognise the representational nature of mental states, distinguishing clearly between internal psychological content and external reality. In presence of differentiation's impairments, imagination takes on the properties of the real world. In this perspective, if the patient is unable to recognise the subjectivity of his/her mental representations, he/she is also unable to maintain critical distance from his/her own representations. Decentration (DEC) refers to the ability to assume other people's perspectives and to make plausible hypotheses about their mental states. Specifically, it means being able to reflect about others' intentions, thoughts and desires, independently of one's own personal point of view.

In the present study, the MAI was administered and scored by three senior interviewers blinded to the clinical diagnosis of the participants. Preliminary inter-rater reliability evaluation was carried out on 20 interviews. To estimate the correlation for every single function rated by different judges, the Intraclass Correlation Coefficient (ICC) was used. A two-way mixed absolute agreement model was applied to carry out the ICC for each dimension of the MAI. The ICC for the MAI's

functions ranged from .55 to .72 for MON; from .50 to .67 for INT; from 0.49 to .78 for DIF; and from 0.45 to 0.61 for DEC; all analyses were significant ($p < 0.001$) and provided good inter-rater reliability. Internal consistency of the MAI dimensions was estimated with Cronbach's alpha, which ranged from 0.85 to 0.89.

Procedure

All measures were administered at baseline. Personality disorder evaluation and diagnosis were made by a clinical team (composed of psychologists and psychiatrists) in accordance with DSM-IV criteria. The study was extensively explained to each participant, who signed a written consent form before entering the study, and the local Ethical Committee approved the evaluation protocol. Following informed consent, all participants completed all the self-report measures and the interviews.

Statistical analyses

In order to test the associations among metacognition, symptoms distress (GSI) and personality severity (number of SCID-II criteria) with ACE, we run a series of ANOVAs using the dichotomous ACE variable (0 = no ACE; 1 = at least 1 ACE - see below for details) as the grouping variable.

Results

The distribution of the variable ACE revealed that 68.9% of the sample reported no adverse childhood event; 22.5% of the sample reported 1 adverse event; 8.3% reported 2 adverse experiences, while 0.3% (only one case) of the sample had 3 adverse childhood experiences. In order to test the differences between patients with no ACE and with at least 1 ACE we dichotomized this count variable coding 0 as absence of ACE ($n = 257$) and 1 indicating at least one ACE ($n = 116$).

Results are summarized in Table II.

Significant differences between the two groups were found but for monitoring and decentration dimensions. The No ACE group showed higher levels of differentiation, integration and the total score of MAI and lower levels of symptom distress and PD severity than the ACE group. Significant effect sizes went from moderately small ($d = 0.22$) to medium-sized ($d = 0.48$).

Discussion

The current study explored metacognition, distress and severity of personality pathology in relation to the presence or absence of ACE. We hypothesized, according to previous research^{18,48}, that: 1) metacognition, 2) personality pathology and 3) symptom distress was most impaired in group that experienced adverse events

TABLE II. ACE related differences on the measured variables.

Measures	No ACE M(SD)	ACE M(SD)	F (1,371)	Cohen's d
Monitoring	11.17 (2.14)	10.74 (2.07)	3.34	0.20
Differentiation	10.09 (1.80)	9.27 (1.88)	16.12***	0.44
Integration	10.26 (1.93)	9.78 (2.36)	4.20*	0.22
Decentration	9.96 (2.24)	9.47 (2.57)	3.49	0.20
MAI total	41.49 (6.91)	39.27 (7.78)	7.64**	0.30
Symptom distress	1.39 (0.65)	1.58 (0.75)	6.54**	0.27
PD severity	17.11 (6.29)	20.28 (6.89)	19.12***	0.48

**: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$.

in childhood. We also assumed that integration and differentiation sub-functions were the most associated to ACE. Therefore, we split a sample of PD patients in two groups, with or without ACE.

As expected, metacognition is more impaired in the ACE group, where integration and differentiation were the most compromised functions. Furthermore, the mean differences between the two groups are significant for metacognition global score (MAI global score) and for integration and differentiation as hypothesized.

These results are in line with different studies, even if most papers refer to borderline personality disorder (BPD). Liotti and Prunetti²² have suggested that traumatic experiences in childhood produce impairments in reflective abilities, and in particular to form coherent representations of oneself and others (integrative function) caused by the disruption of attachment patterns in BPD. Also Semerari et al.^{6,49}, Brune et al.⁵⁰, Fonagy et al.²¹ found that impairments in integrative function characterize BPD. The results are also consistent with other studies showing that the attachment representations of individuals with PD are unresolved in relation to trauma and loss⁵¹ and that in sample of individuals with BPD, 89% were coded as unresolved from 75%⁵², to 89%⁵³. And consistently with Semerari et al.^{6,49}, and Fonagy et al.²¹, the correlation with differentiation also appears to be significant. Carcione et al.⁷ provided evidence that differentiation and integration were the most impaired functions at the baseline in a sample of 193 outpatients treated with Metacognitive Interpersonal Therapy⁵⁴.

In the study by Brune et al.⁵⁰ the decentration, measured throughout performance in a novel cartoon-based task, was found strongly associated to impaired mentalization, while in our paper does not emerge a difference between the two groups in this sub-function, but in differentiation. This could be explained because the different kind of instrument used to assess reflective

abilities. Keeping in mind that Differentiation and Decentration imply the ability to consider the subjective and representational nature of the thought in self-reflection area and in comprehension of others mind respectively, it's possible that, compared to MAI, the novel cartoon task could be less sensitive to distinguish the two sub-functions.

Another hypothesis of this study was that symptom distress, measured by the GSI-SCL 90-R index, was higher in ACE group, as also general personality pathology, measured through the number of SCID-II criteria satisfied, were more compromised. Our results are in line with previous findings that have confirmed that childhood experiences of loss and/or abuse were significantly associated with later onset of PD and higher level of psychiatric distress⁵⁵⁻⁵⁸.

In spite of the statistical significance of our data, we consider appropriate to note that some recent studies, although providing evidence on the association between traumatic events, reflective abilities and PDs, suggest that the relationship may not be direct and ACE by itself would not be sufficient to compromise reflective abilities and generate PDs. For instance, Cirasola et al.⁵⁷ found that the association between childhood experiences of trauma and current PD diagnosis would be, at least partly, mediated by the degree to which participants resolved early traumatic experiences. The author also found that unresolved state of mind could be one mechanism through which childhood trauma may increase the risk for PD, mediating the relation between trauma and PD diagnosis.

This study presents some limitations and some strength. The ACE index we used is clearly rough. It serves the end of looking for associations with other variables, but is not suitable for purposes that need higher measurement reliability and validity. Furthermore, it is possible that different types of traumatic events (physical violence, neglect, psychological abuse)

could have a different impact on metacognitive abilities, as suggested by Berthelot et al.⁴⁸, showing evidences that is emotional maltreatment, and not physical forms of maltreatment, that in particular influences borderline pathology through its effects on mentalization measured as Reflective Function. Psychological abuse seems to affect mentalisation more than other forms of maltreatment because it directly attacks the child's mind⁴².

Heterogeneity of the sample represents at the same time a strength and a weakness of the study. It is a strength because it provides a sample of PDs quite wide and is one of the few studies that consider an adult clinical sample (see also^{18,50}), while most are centered on childhood^{59,60} and adolescence⁶¹. Majority studies are focused on BPD and this can represent a bias in PDs research⁶² considering that about 50% of the patients diagnosed as having a PD are diagnosed having at least another PD co-occurring, with that other diagnosis (Axis I according to the DSM-IV)^{63,64}. To have information more closed to the real clinical practice, in this paper we decided to use a sample composed by all the personality disorders. But at the same time this can be a limitation because ACE may be more related to the development of a specific kind of PD than others, for example BPD on which most of the studies have been done. The study also lacks of a third control group composed by individuals without a diagnosis of PD. Another limitation may be the use of cross-sectional

design; while the results provide some evidence of the interaction between childhood abuse, metacognition and personality pathology in the adult population, no conclusions can be drawn regarding causality or temporal relationships.

Another strength of the study is the use of an interview and not of self-report to evaluate metacognition, as underlined by Quek et al.⁶¹ who highlighted this limit in his study. It seems paradoxical to ask a person who is supposed to present difficulty in reflecting on himself, if he has difficulty in reflecting on himself, so self-report measures to evaluate reflective abilities are vulnerable to recall and reporting biases.

Conclusions

This paper provides a further contribute to the hypothesis that adverse childhood experiences represent a significant variable that impact on the good development of metacognition (as measure of reflective ability) lifetime in individuals diagnosed as PDs. This is particularly true for the integration and differentiation metacognitive sub-functions, that generally appear to be the most impaired in PDs samples. Further studies are desirable to explore the several independent pathways that could be link early adversity to PD diagnosis, given the need for studies of PD risk factors in the general population. This could be useful for the comprehension of the core features of PDs, to improve treatment.

References

- Bateman A, Fonagy P. *Psychotherapy for borderline personality disorder: a practical guide*. Oxford: Oxford University Press 2004. <https://doi.org/10.1093/med:psych/9780198527664.001.0001>
- Dimaggio G, Semerari A, Carcione A, et al. *Psychotherapy of personality disorders: metacognition, states of mind, and interpersonal cycles*. London: Routledge 2007. <https://doi.org/10.4324/9780203939536>
- Fonagy P. Thinking about thinking: some clinical and theoretical considerations in the treatment of a borderline patient. *Int J Psychoanal* 1991;72:639-56.
- Gullestad FS, Johansen MS, Høglend P, et al. Mentalization as a moderator of treatment effects: findings from a randomized clinical trial for personality disorders. *Psychother Res* 2013; 23:674-89. <https://doi.org/10.1080/10503307.2012.684103>
- Semerari A, Colle L, Pellecchia G, et al. Metacognitive dysfunctions in personality disorders: correlations with disorder severity and personality styles. *J Pers Disord* 2014;28:751-66. https://doi.org/10.1521/pedi_2014_28_137
- Semerari A, Colle L, Pellecchia G, et al. Personality disorders and mindreading: specific impairments in patients with borderline personality disorder compared to other PDs. *J Nerv Mental Dis* 2015;203:626-31. <https://doi.org/10.1097/NMD.0000000000000339>
- Carcione A, Riccardi I, Bilotta et al. Metacognition as a predictor of improvements in personality disorders. *Front Psychol* 2019;10:170. <https://doi.org/10.3389/fpsyg.2019.0017>
- Bouchard MA, Target M, Lecours S, et al. Mentalizing in adult attachment narratives: reflective functioning, mental states, and affect elaborations compared. *Psychoanal Psychol* 2008;25:47-66. <https://doi.org/10.1037/0736-9735.25.1.47>
- Choi-Kain LW, Gunderson JG. Mentalization: ontogeny, assessment, and application in the treatment of borderline personality disorder. *Am J Psychiatry* 2008;11:127-35. <https://doi.org/10.1176/appi.ajp.2008.070.81360>
- Semerari A, Carcione A, Dimaggio G, et al. How to evaluate metacognitive functioning in psychotherapy? The metacognition assessment scale and its applications. *Clin Psychol Psychother* 2003;10:238-61. <https://doi.org/10.1002/cpp.362>
- Semerari A, Carcione A, Dimaggio G, et al. Understanding minds: different functions and different disorders? The contribution of psychotherapy research. *Psychother Res* 2007;17:106-19. <https://doi.org/10.1080/10503300500536953>
- Dimaggio G, Lysaker PH. *Metacognition and severe adult mental disorders: from basic research to treatment*. London: Routledge 2010. <https://doi.org/10.4324/9780203855782>
- Carcione A, Nicolò G, Pedone R, et al. Metacognitive mastery dysfunctions in personality disorder psychotherapy. *Psychiatry Res* 2011;190:60-71. <https://doi.org/10.1016/j.psychres.2010.12.032>
- Bo S, Abu-Akel A, Kongerslev M, et al. Mentalizing mediates the relationship between psychopathy and type of aggression in schizophrenia. *J Nerv Ment Dis* 2014;202:55-63. <https://doi.org/10.1097/NMD.0000000000000067>
- Fonagy P, Bateman, AW. *Adversity, attach-*

- ment, and mentalizing. *Compr Psychiatry* 2016;64:59-66. <https://doi.org/10.1016/j.comppsy.2015.11.006>.
- 16 Carcione A, Dimaggio G, Conti L et al. Metacognition Assessment Scale (MAS) V.4.0-Manual. Unpublished manuscript Rome: Terzocentro 2010.
- 17 Battle CL, Shea MT, Johnson DM et al. Childhood maltreatment associated with adult personality disorders: findings from the Collaborative Longitudinal Personality Disorders study. *J Pers Disord* 2004;18:193-211. <https://doi.org/10.1521/pedi.18.2.193.32777>
- 18 Chiesa M, Fonagy P. Reflective function as a mediator between childhood adversity, personality disorder and symptom distress. *Personal Ment Health* 2014;8:52-66. <https://doi.org/10.1002/pmh.1245>
- 19 Zanarini MC, Gunderson JG, Marino MF, et al. Childhood experiences of borderline patients. *Compr Psychiatry* 1989;30:18-25. [https://doi.org/10.1016/0010-440x\(89\)90114-4](https://doi.org/10.1016/0010-440x(89)90114-4)
- 20 Fonagy P, Luyten P. A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Develop and Psychop* 2009;21:355-1381. <https://doi.org/10.1017/S0954579409990198>
- 21 Fonagy P, Gergely G, Jurist EL, et al. *Affect regulation, mentalization, and the development of the self*. New York: Other Press 2002.
- 22 Liotti G, Prunetti E. Metacognitive deficits in trauma related disorders: contingent on interpersonal motivational contexts? In: Dimaggio G, Lysaker PH, eds. *Metacognition and severe adult mental disorders: from basic research to treatment*. London, England: Routledge 2010.
- 23 Allen JG, Fonagy P, Bateman AW. *Mentalizing in clinical practice*. American Psychiatric Pub 2008.
- 24 Cicchetti D, Rogosch FA, Maughan A, et al. False belief understanding in maltreated children. *Dev Psychopathol* 2003;15:1067-91. <https://doi.org/10.1017/S0954579403000440>
- 25 Ensink K, Normandin L, Target M, et al. Mentalization in children and mothers in the context of trauma: an initial study of the validity of the Child Reflective Functioning Scale. *Br J Dev Psychol* 2015;33:203-17. <https://doi.org/10.1111/bjdp.12074>
- 26 Pears KC, Fisher PA. Emotion understanding and theory of mind among maltreated children in foster care: evidence of deficits. *Dev Psychopathol* 2005;17:47-65. <https://doi.org/10.1017/S0954579405050030>
- 27 Taubner S, Curth C. Mentalization mediates the relation between early traumatic experiences and aggressive behavior in adolescence. *Psihologija* 2013;46:177-92. <https://doi.org/10.2298/PSI1302177T>
- 28 Lysaker PH, Dimaggio G, Wickett-Curtis A, et al. Deficits in metacognitive capacity are related to subjective distress and heightened levels of hyperarousal symptoms in adults with post-traumatic stress disorder. *J Trauma Diss* 2015;16:384-98. <https://doi.org/10.1080/15299732.2015.1005331>
- 29 Deblinger E, Mannarino AP, Cohen J A, et al. Trauma-focused cognitive behavioral therapy for children: impact of the trauma narrative and treatment length. *Depress Anxiety* 2011;28:67-75. <https://doi.org/10.1002/da.20744>
- 30 Ensink K, Berthelot N, Bernazzani O, et al. Another step closer to measuring the ghosts in the nursery: preliminary validation of the Trauma Reflective Functioning Scale. *Front Psychol* 2014;5:1-12. <https://doi.org/10.3389/fpsyg.2014.01471>
- 31 Stacks AM, Muzik M, Wong K, et al. Maternal reflective functioning among mothers with childhood maltreatment histories: links to sensitive parenting and infant attachment security. *Attach Hum Develop* 2014;16:515-33. <https://doi.org/10.1080/14616734.2014.935452>
- 32 Honkalampi K, Flink N, Lehto SM, et al. Adverse childhood experiences and alexithymia in patients with major depressive disorder. *Nord J Psychiatry* 2019;74:45-50. <https://doi.org/10.1080/08039488.2019.1667430>
- 33 Zlotnick C, Mattia JI, Zimmerman M. The relationship between post-traumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. *J Traum Stress* 2001;14:177-88. <https://doi.org/10.1023/A:1007899918410>
- 34 Rossi R, Longo L, Fiore D, et al. Dissociation in stress-related disorders and self-harm: a review of the literature and a systematic review of mediation models. *Journal of Psychopathology* 2019;25:162-71.
- 35 Herzog JI, Schmahl C. Adverse childhood experiences and the consequences on neurobiological, psychosocial, and somatic conditions across the lifespan. *Front Psychiatry* 2018;9:420. <https://doi.org/10.3389/fpsy.2018.0042>
- 36 Hengartner MP, Ajdacic-Gross V, Rodgers S, et al. Childhood adversity in association with personality disorder dimensions: new findings in an old debate. *European Psychiatry* 2013;28:476-82. <https://doi.org/10.1016/j.eurpsy.2013.04.004>
- 37 Kessler RC, McLaughlin KA, Green JG, et al. Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br J of Psychiatry* 2010;197:378-85. <https://doi.org/10.1192/bjp.bp.110.080499>
- 38 Samuels J. Personality disorders: epidemiology and public health issues. *Int Rev Psychiatry* 2011;23:223-33. <https://doi.org/10.3109/09540261.2011.588200>
- 39 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: text revision (4th Ed.)*. Washington, DC: American Psychiatric Publishing 2000.
- 40 First MB, Spitzer RL, Gibbon M, et al. *Structured clinical interview for DSM-IV axis I personality disorders, (SCID-II)*. Washington, DC: American Psychiatric Press 1977.
- 41 Chiesa M, Fonagy P. Cassel personality disorder study: methodology and treatment effects. *Br J Psychiatry* 2000;176:485-91. <https://doi.org/10.1192/bjp.176.5.485>
- 42 Bifulco A, Moran PM, Baines R, et al. Exploring psychological abuse in childhood: II. Association with other abuse and adult clinical depression. *Bull Menninger Clin* 2002;66:241-58. <https://doi.org/10.1521/bumc.66.3.241.23366>
- 43 Moran PM, Bifulco A, Ball C, et al. Exploring psychological abuse in childhood: I. Developing a new interview scale. *Bull Menninger Clin* 2002; 66:213-40. <https://doi.org/10.1521/bumc.66.3.213.23367>
- 44 Bifulco A, Brown GW, Harris TO. Childhood experience of care and abuse (CECA): a retrospective interview measure. *J Child Psychol Psychiatry* 1994;35:1419-35. <https://doi.org/10.1111/j.1469-7610.1994.tb01284.x>
- 45 Derogatis LR. *SCL-90-R, Administration, scoring & procedures manual-I for the revised version*. Baltimore, MD: Johns Hopkins School of Medicine 1977.
- 46 Semerari A, Cucchi M, Dimaggio G, et al. The development of the metacognition assessment interview: instrument description, factor structure and reliability in a non-clinical sample. *Psych Res* 2012;200:890-95. <https://doi.org/10.1016/j.psychres.2012.07.015>
- 47 Pellecchia G, Moroni F, Carcione A, et al. Metacognition assessment interview: instrument description and factor structure. *Clin Neuropsychiatry* 2015;12:157-65. <https://doi.org/10.1016/j.psychres.2012.07.015>
- 48 Berthelot N, Lemieux R, Garon-Bissonnette J, et al. The protective role of mentalizing: reflective functioning as a mediator between child maltreatment, psychopathology and parental attitude in expecting parents. *Child Abuse Neglect* 2019;95:104065. <https://doi.org/10.1016/j.chiabu.2019.104065>
- 49 Semerari A, Carcione A, Dimaggio G, et

- al. Metarepresentative functions in borderline personality disorder. *J Pers Disord* 2005;19:690-710. <https://doi.org/10.1521/pedi.2005.19.6.690>
- ⁵⁰ Brüne M, Walden S, Edell MA, et al. Mentalization of complex emotions in borderline personality disorder: the impact of parenting and exposure to trauma on the performance in a novel cartoon-based task. *Compr Psychiatry* 2016;64:29-37. <https://doi.org/10.1016/j.comppsy.2015.08.003>
- ⁵¹ Dozier MK, Stowall-McColough C, Albus KE. Attachment and psychopathology in adulthood. In: Cassidy J, Shaver PR, eds. *Handbook of attachment theory and research* (2nd Ed.). New York: Guilford Publications 2008, pp. 718-44.
- ⁵² Patrick M, Hobson RP, Castle D, et al. Personality disorder and the mental representation of early social experience. *Develop Psychopath* 1994;6:375-88. <https://doi.org/10.1017/S0954579400004648>
- ⁵³ Fonagy P, Leigh T, Steele M, et al. The relationship of attachment status, psychiatric classification, and response to psychotherapy. *J Cons Clin Psych* 1996;64:22-31.
- ⁵⁴ Carcione A, Nicolò G, Semerari A. *Curare i casi complessi. La terapia metacognitiva interpersonale dei disturbi di personalità*. Bari: Laterza 2016.
- ⁵⁵ Afifi TO, Mather A, Boman J, et al. Childhood adversity and personality disorders: results from a nationally representative population-based study. *J Psychiatr Res* 2011;45:814-22. <https://doi.org/10.1016/j.jpsychires.2010.11.008>
- ⁵⁶ Brown J, Cohen P, Johnson JG, et al. Childhood abuse and neglect: specificity of effects on adolescent and young adult depression and suicidality. *J Am Acad Child Adolesc Psychiatry* 1999;38:1490-6. <https://doi.org/10.1097/00004583-199912000-00009>
- ⁵⁷ Cirasola A, Hillman S, Fonagy P, et al. Mapping the road from childhood adversity to personality disorder: the role of unresolved states of mind. *Personal Ment Health* 2017;11:77-90. <https://doi.org/10.1002/pmh.1365>
- ⁵⁸ Grover KE, Carpenter LL, Price LH, et al. The relationship between childhood abuse and adult personality disorder symptoms. *J Pers Disord* 2007;21:442-7. <https://doi.org/10.1521/pedi.2007.21.4.442>
- ⁵⁹ Ensink K, Begin M, Normandin L, et al. Mentalization and dissociation in the context of trauma: implications for child psychopathology. *J Trauma Dissociation* 2017;18:11-30. <https://doi.org/10.1080/15299732.2016.1172536>
- ⁶⁰ Tessier VP, Normandin L, Ensink K, et al. Fact or fiction? A longitudinal study of play and the development of reflective functioning. *Bull Menninger Clin* 2016;80:60-79. <https://doi.org/10.1521/bumc.2016.80.1.60>
- ⁶¹ Quek J, Newman L K, Bennett C, et al. Reflective function mediates the relationship between emotional maltreatment and borderline pathology in adolescents: a preliminary investigation. *Child Abuse Negl* 2017;72:215-26. <https://doi.org/10.1016/j.chiabu.2017.08.008>
- ⁶² Dimaggio G, Nicolò G, Semerari A, et al. Investigating the personality disorder psychotherapy process: the roles of symptoms, quality of affects, emotional dysregulation, interpersonal processes, and mentalizing. *Psychother Res* 2013;23:624-32. <https://doi.org/10.1080/10503307.2013.845921>
- ⁶³ Clark LA. Assessment and diagnosis of personality disorder: perennial issues and an emerging reconceptualization. *Ann Rev of Psychol* 2007;58:227-57. <https://doi.org/10.1146/annurev.psych.57.102904.190200>
- ⁶⁴ Sharp C, Pane H, Ha C, et al. Theory of mind and emotion regulation difficulties in adolescents with borderline traits. *J Am Ac Child Adol Psych* 2011;50:563-73. <https://doi.org/10.1016/j.jaac.2011.01.017>