SELF-ORIENTED EMPATHY AND PERSONALITY ORGANISATION LEVEL: INSIGHTS FROM A PSYCHIATRIC SAMPLE

Emanuele Pick, Chiara Pavan, Massimo Marini, Ylenia Cariolato,
Elisabetta Bogliolo, Tommaso Toffanin, Arianna Palmieri

Abstract

Objective: Empathy functioning is among the criteria to delineate psychiatric diagnosis. However, the self-oriented empathy dimension is almost neglected in the existing literature. On the basis of previous fragmented contributions, we hypothesised that an individual's level of personality organisation is explained by this facet of empathy more than the other components of empathy, both transversally and independently from the specific psychiatric diagnosis.

Method: Fifty-nine psychiatric inpatients were evaluated with clinical interviews inspired by the Structured Clinical Interview for *DSM-5*, completed the Symptom Checklist-90-Revised, and Interpersonal Reactivity Index (IRI). A panel of experts established each patient's psychiatric diagnosis and the level of personality organisation according to *DSM-5* and *PDM-2*. Thirty-two patients were considered functioning at a psychotic level, 27 at a borderline level, and none at a neurotic level. Multinomial models were compared with the corrected AIC to determine if self-oriented empathy, among all IRI subscales, was the best-fitting model for explaining the levels of personality organisation. A further analogue series of models was used to investigate the best IRI subscale to explain each patient's psychiatric diagnosis.

Results: The first series of models revealed self-oriented empathy (IRI personal distress subscale) as the best empathic dimension to explain levels of personality organisation. The second series revealed that none of the four IRI subscales explained psychiatric diagnoses.

Conclusions: The consistency of our findings with evolutionary concepts pertaining to both traditional psychodynamic models and contemporary models of psychopathology, such as the *p* factor theory, was illustrated. Despite the many limitations of our consecutive sampling jeopardising the findings' generalisability, the insight of self-oriented empathy as the best predictor of the level of personality organisation, irrespective of psychiatric diagnosis, has several implications from both research and clinical/diagnostic perspectives.

Key words: self-oriented empathy, other-oriented empathy, Interpersonal Reactivity Index, level of personality organisation, psychiatric inpatients

Emanuele Pick[a], Chiara Pavan[b], Massimo Marini[b], Ylenia Cariolato[a], Elisabetta Bogliolo[a], Tommaso Toffanin[c,d] & Arianna Palmieri[a,d]

[a] Dipartimento Filosofia, Sociologia, Pedagogia e Psicologia Applicata – Università degli Studi di Padova – Padova – Italia
[b] Dipartimento di Medicina – Università degli Studi di Padova – Padova – Italia
[c] Psychiatric Clinic – Azienda Ospedaliera di Padova – Padova – Italia
[d] Padova Neuroscience Center – Università degli Studi di Padova – Padova – Italia

Introduction

The concept of empathy has changed over time and today is applied in several distinct disciplinary contexts because it is a proteiform construct encompassing mechanisms underlying experiences, from interpersonal to aesthetic ones (Ganczarek et al., 2018). In the last decades, empathy functioning has been progressively and more thoroughly investigated in psychiatric (Decety & Moriguchi, 2007) and neurological diseases (Pick et al., 2019). Indeed, empathy functioning is a criterium contemplated in diagnosing clinical and personality disorders using the main psychiatric/psychopathological diagnostic manuals, such as the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (*DSM-5*; American Psychiatric Association, 2013) and the *Psychodynamic Diagnostic Manual, 2nd Edition* (*PDM-2*; Lingiardi & McWilliams, 2017).

Empathy has been introduced as a crucial concept in the clinical field since the beginning of psychoanalytic tradition with the term *Einfühlung* (Freud, 1916)—which Edward Titchener and James Ward translated as

"empathy" in 1908 (see Lanzoni, 2012). Its heuristic centrality in the understanding of psychopathological suffering was consolidated by the seminal contribution of Heinz Kohut, whose self-psychology theorised that a healthy versus psychopathological child's development depends on sufficient exposure to their caregiver's empathy (Kohut, 1978). Besides Kohut, several other eminent authors in the psychoanalytic field, such as Fliess (1942) and Greenson (1960), have corroborated the idea of empathy being crucial in comprehending patients' clinical picture, associating it with the mechanism of identification of which it would be, briefly, the preconscious and temporary expressions.

Currently, the empathy construct is usually categorised into at least two domains—i.e., affective and cognitive (Zaki & Ochsner, 2012)—based on empirical support from the discovery of the empathy domains' distinct neural functioning (Shamay-Tsoory, 2011). Namely, affective empathy (also known as experience sharing) has been associated with the activation of the insula, amygdala, anterior cingulate cortex, and, more generally, with areas that are connected to mirror mechanisms (Gallese, 2007; Shamay-Tsoory, 2011). Cognitive empathy (including mentalising [Zaki & Ochsner, 2012]), on the other hand, recruits the dorsomedial prefrontal cortex, superior temporal sulcus, temporoparietal junction, and temporal poles (Shamay-Tsoory, 2011). The joint interplay of the two components occurs in distinct patterns in specific psychopathologies. For instance, affective empathy has been found to be selectively and significantly impaired in individuals with narcissistic personality disorder (Urbonaviciute & Hepper, 2020) and antisocial personalities (De Brito et al., 2021). Conversely, cognitive empathy has been observed as selectively impaired in patients with schizophrenia (Berger et al., 2019), borderline personality disorder (Harari et al., 2010), and Asperger syndrome (Dziobek et al., 2008).

The classical model Davis (1980) introduced divides empathy into affective and cognitive components as well, and affective empathy into two further components: *self-oriented* and *other-oriented*. In delineating such a distinction, his theorisation was in turn inspired by Hoffman's model. In brief, Hoffman (1976) hypothesised that when children in early development observe another in distress, they typically experience it as their own distress. Over time, with the development of the ability to apprehend others' perspectives, self-centred personal distress is transformed into other-oriented empathic concern.

Specifically, in Davis's model (1980) the self-oriented component reflects the subject's tendency to experience distress and anxiety when another person is experiencing a negative occurrence, indicating possible unease in tense interpersonal settings, indirectly indicating shyness, low self-esteem, and poor interpersonal functioning; on the other hand, the other-oriented component indicates vicarious emotions in terms of feelings of warmth, compassion, and concern towards others who are experiencing discomfort. Later authors have hypothesised that when the distinct representations of self and others greatly overlap, a person might experience a self-focused, aversive response to another's emotional state (i.e., personal distress; Decety & Jackson, 2006).

Based on such conceptualisations, Davis created the Interpersonal Reactivity Index (IRI; Davis, 1983), which considers the affective components of empathy, with its self- and other-oriented distinctions, as well as the cognitive components of empathy. Today, the IRI is incontrovertibly the most-used self-report measure

of empathic attitudes in psychiatric research and clinical assessment (Ilgunaite et al., 2017). A schematic illustration of Davis's model as expressed in his questionnaire is displayed in **table 1**.

The self-oriented perspective, which our study addresses, is electively assessed by the IRI personal

Table 1. *Categorisation of IRI subscales (Davis, 1983)*

	Empathy component	Orientation component
Personal Distress	Affective	Self-oriented
Empathic Concern	Affective	Other-oriented
Fantasy	Cognitive	—
Perspective Taking	Cognitive	—

distress subscale; this subscale and the IRI empathic concern subscale, representing the other-oriented component, are the two IRI subscales used to measure affective empathy. Examples of items of the personal distress subscale (i.e., indicating self-oriented feelings) of the IRI (Davis, 1983) include the following: "When I see someone who badly needs help in an emergency, I go to pieces" and "Being in a tense emotional situation scares me." A psychodynamic explanation of these results can be obtained from Eisenberg's theorisation on personal distress (Eisenberg & Eggum, 2009). She highlights that personal distress is caused by worrying about other people's emotions, but when one is focused only on the self, empathy is exclusively implicated in alleviating one's own suffering. Namely, Eisenberg and Fabes (1992) indicate the etiopathogenesis of personal distress in terms of excessive arousal with which the patient is incapable to cope.

However, soon after Davis's theoretical introduction into the scientific panorama, research approached the study of the empathic construct mostly referring to other-oriented empathy scales—i.e., addressing feelings that are more empathetically socially oriented, for instance in terms of congruent vicarious emotions (Batson et al., 1987). Impaired empathy in terms of other-oriented feelings, as evaluated with the IRI, has often been positively associated with greater psychopathological suffering/syndromic manifestations in a significant number of studies (e.g., Berger et al., 2019; Harari et al., 2010; Urbonaviciute & Hepper, 2020). Conversely, studies explicitly considering self-oriented empathy in the field of psychopathology/psychiatric diseases are still scarce and fragmented.

Arguably, as a consequence of the disproportion in the interests of the scientific community on self- and other-oriented components in great favour of the latter, the hybrid dimensional-categorical "Alternative Model of Personality Disorders" section of the *DSM-5* seems to explicitly refer only to the other-oriented dimension. Namely, in the *DSM-5*, "Empathy" is one of the two criteria (together with the category of "Intimacy") considered for the evaluation of "Interpersonal Functioning" peculiar in six out of ten personality disorders (which can be assessed on a five-level scale ranging from zero—little or no impairment—to four—extreme impairment). For example, in narcissistic personality disorder, empathic impairment manifests as an "Impaired ability to recognise or identify with the feelings and needs of others […];" similarly, in avoidance

personality disorder it refers to "Preoccupation with, and sensitivity to, criticism or rejection, associated with distorted inference of others' perspectives as negative […]." In the *PDM-2* (Lingiardi & McWilliams, 2017) as well, empathic functioning is included in three out of twelve components of mental functioning (M axis), as an index of good versus poor psychological functioning (in the lower extreme, individuals exhibit "[…] distortion of others' emotional signals […]," they may "[…] misunderstand, misinterpret, or are confused by others' actions and reactions […]" or are "[…] lacking in intimacy and empathy. They are indifferent to the needs of others […]"). However, such classifications seem to refer only to the other-oriented perspective of empathy. Moreover, aside from the fact that affective and cognitive components are not well separated in the *DSM-5*, overall empathy functioning seems to be addressed exclusively in terms of personality disorders; thus, from a psychodynamic point of view (Lingiardi & McWilliams, 2017), these criteria only apply to patients with a borderline level of personality organisation. In line with this, we performed a non-systematic overview of the literature using the Scopus and Web of Science databases. Confirming the impression of the paucity of research in psychiatric disease and self-oriented empathy, only a dozen studies emerged on the topic of self-oriented empathy in psychopathology/psychiatric diseases from 1976 to 2021. A recent example includes Wang et al. (2020), who found that individuals with schizophrenia with severe positive symptoms had increased self-oriented empathy. Similarly, Cusi et al. (2010) found that bipolar disorder was also associated with elevated self-oriented empathy in response to others' negative experiences. In episodic depression, Guhn et al. (2020) indicated that patients reported higher degrees of self-oriented empathy than healthy control individuals. Upon synthesis, the impression is that deficits in self-oriented empathy, contrary to those in the affective–cognitive polarity, may be seen in the most severe forms of psychiatric suffering independently from their nature (i.e., encompassing schizophrenia, bipolar disorder, depression, etc., which are all commonly characterised by severe symptomatology).

These studies inspired us to hypothesise that self-oriented empathy might be associated with lower levels of personality organisation/psychological functioning, independent from the diagnostic taxonomy (i.e., different individuals with the same psychiatric diagnosis, for instance with major depression, may have different levels of personality organisation—one individual at a psychotic level, the other one at a borderline level).

Notably, with "low psychological functioning," and more generally with low psychosocial functioning (De Panfilis et al., 2018), we refer to individuals with identity diffusion, poor differentiation between self and other representations and between fantasy and external reality, frequent use of primitive defences, and compromised reality testing (Kernberg, 1984; Lingiardi & McWilliams, 2017). Namely, the psychodynamic perspective conceives dimensions of personality organisations as laying on a *continuum* ranging from a healthy to a psychotic level, through neurotic and borderline levels (Lingiardi & McWilliams, 2017).

In light of these premises, our principal hypothesis was that, among all IRI subscales, personal distress as a measure of self-oriented empathy, would be the best predictor of an individual's personality organisation level, compared to the other three IRI subscales. In particular, we highlight that even if both the personal distress and empathic concern subscales underpin the affective dimension of empathy, only the personal distress

subscale could explain personality organisation, different from empathic concern. Although empathic concern is connected to affective empathy, it also relates to the other-oriented dimension. Such an idea is in line with many traditional theoretical psychodynamic perspectives (Eisenberg & Eggum, 2009; Eisenberg & Fabes, 1992; Kohut, 1978) and with more recent theorisations of an overarching meta-factor of psychopathology, the so-called *p* factor (Caspi et al., 2014; for details see Discussion section).

To determine if self-oriented empathy is crucial in personality organisation, we analysed the data with a series of multinomial models to determine the best-fitting model among the many facets of empathy. Namely, we considered IRI subscales as independent variables and the level of personality organisation as the dependent variable. As a secondary, confirmative hypothesis, we expected that the psychiatric diagnosis, as it is substantially independent of the personality organisation level in the majority of cases (out of the personality disorders that are always included at a borderline level of personality organisation [Lingiardi & McWilliams, 2017; McWilliams, 2011]), would not be explained by any of the IRI subscales. Analogously, to determine the best-fitting model, we analysed the data with a further series of multinomial models considering IRI subscales as independent variables and psychiatric diagnosis as the dependent variable. To test our hypothesis, we conducted a pilot, non-randomised study based on a pragmatic sample of psychiatric inpatients who were consecutively hospitalised in the Psychiatry Unit of Padova Hospital.

Methods

Participants

Sixty-four patients who consecutively presented from February to April 2019 to the inpatient Psychiatry Unit of Padova Hospital, eligible with the full comprehension of written and oral Italian language and ability to fill out a self-report questionnaire, were asked to participate in the present research. Of them, 59 (61% F) agreed to participate. Their mean age was 44.46 years ($SD = 17.43$). Incidentally, 36% of the patients had already undergone at least one previous admission to the same unit. All participants provided written informed consent before their involvement in the study in accordance with the Helsinki ethical principles for medical research. Participants' privacy was guaranteed per the European Union General Data Protection Regulation 2016/679.

Diagnostic evaluation procedure

Each patient underwent at least two clinical psychiatric diagnostic interviews by the same psychiatrist/psychotherapist (C.P., M.M., T.T., or A.P.) inspired by the items of the Structured Clinical Interview for the *DSM-5* (First et al., 2016, 2017) and completed the Symptom Checklist-90-Revised (Derogatis & Unger, 2010; Prunas et al., 2012) and IRI (Albiero et al., 2006; Davis, 1983). At the end of each interview, the psychiatrist/psychotherapist compiled a report about the case and shared it with the other colleagues who did not see the patient.

To define each patient's *DSM-5* (American Psychiatric Association, 2013) diagnosis and *PDM-2* (Lingiardi & McWilliams, 2017) level of personality organisation, all mental health professionals involved in the study individually and critically meditated on the elements that emerged from the clinical interviews and

the data collected by the administered questionnaires. Namely, the *DSM-5* evaluation focused on the symptoms present (American Psychiatric Association, 2013), while the *PDM-2* levels of personality organisation were based on the evaluation of identity diffusion, differentiation between self and other representations, primitive defences, and reality testing (Kernberg, 1984; Lingiardi & McWilliams, 2017).

To reach the best possible diagnostic procedure for the subsample of patients who had undergone previous admission to the Psychiatry Unit of Padova Hospital;

hence, delineating the principal diagnosis and one or more secondary ones, the clinical elements collected at the time of this study were integrated alongside previous medical records with the relative treatments received. For the purposes of the current study, we considered only the principal diagnosis.

Namely, to reach the diagnostic consensus, the health professional who had conducted the interviews with the patients proposed the eligible *DSM-5* principal diagnosis and the *PDM-2* level of personality organisation. After joint discussion and comparing the individual opinions

Table 2. *Descriptive statistics of the IRI and SCL-90-R divided by gender, level of personality organisation, and DSM-5 category*

Variable	N	IRI-PD	IRI-EC	IRI-PT	IRI-FS	SCL-SOM	SCL-OC	SCL-INT	SCL-DEP	SCL-ANX	SCL-HOS	SCL-PHOB	SCL-PAR	SCL-PSY	SCL-SLEEP
									Mean (standard deviation)						
Gender															
Females	36	17.87 (5.80)	19.43 (4.73)	16.90 (5.22)	13.23 (5.96)	1.30 (1.07)	1.70 (1.04)	1.39 (1.08)	2.07 (1.14)	1.56 (1.08)	0.94 (0.85)	1.06 (0.99)	1.50 (1.18)	1.18 (0.93)	1.76 (1.39)
Males	23	17.74 (4.81)	18.65 (4.86)	15.66 (4.61)	15.51 (5.53)	1.30 (0.70)	1.40 (0.88)	1.14 (0.81)	1.61 (0.96)	1.20 (1.02)	0.57 (0.50)	0.66 (0.89)	1.21 (0.80)	0.79 (0.65)	1.26 (1.19)
Level of personality organisation according to PDM-2 criteria															
Borderline	27	15.66 (5.65)	19.61 (4.03)	15.65 (4.61)	13.76 (5.40)	1.33 (0.94)	1.71 (1.07)	1.22 (1.00)	1.86 (1.18)	1.47 (1.09)	0.76 (0.78)	1.01 (1.01)	1.36 (1.10)	1.00 (0.90)	1.64 (1.51)
Psychotic	32	19.64 (4.49)	18.72 (5.31)	17.06 (5.28)	14.43 (6.28)	1.27 (0.95)	1.47 (0.90)	1.36 (0.98)	1.92 (1.02)	1.38 (1.05)	0.82 (0.74)	0.81 (0.93)	1.41 (1.03)	1.05 (0.81)	1.50 (1.16)
Nosographic category according to DSM-5 criteria															
Schizophrenia Spectrum and Other Psychotic Disorders	10	20.64 (4.12)	14.83 (3.36)	13.90 (3.14)	11.00 (3.59)	1.21 (0.86)	1.35 (0.83)	1.10 (0.92)	1.70 (0.92)	1.15 (0.77)	0.85 (0.59)	0.68 (0.92)	1.32 (0.85)	0.75 (0.58)	1.13 (1.22)
Bipolar and Related Disorders	10	18.70 (6.33)	19.50 (5.17)	18.40 (5.95)	13.60 (8.68)	1.56 (0.76)	1.94 (0.76)	1.35 (1.03)	2.29 (0.99)	1.95 (1.09)	0.72 (0.55)	1.00 (0.90)	1.40 (0.85)	1.37 (0.78)	2.40 (1.32)
Depressive Disorders	22	16.80 (5.12)	19.21 (4.29)	15.49 (4.87)	15.85 (5.30)	1.30 (1.05)	1.62 (1.09)	1.48 (1.07)	1.86 (1.15)	1.32 (1.04)	0.77 (0.80)	0.73 (0.88)	1.55 (1.22)	1.06 (0.87)	1.51 (1.28)
Anxiety Disorders	2	17.00 (5.66)	20.00 (4.24)	17.41 (3.42)	13.59 (2.24)	1.29 (0.41)	2.15 (0.07)	1.39 (0.71)	2.84 (0.76)	2.55 (0.07)	0.92 (0.35)	2.21 (0.30)	1.75 (0.59)	1.15 (0.21)	2.00 (2.36)
Trauma- and Stressor-Related Disorders	3	14.67 (2.08)	22.22 (3.67)	19.00 (6.08)	11.00 (3.46)	1.91 (1.23)	2.19 (0.97)	2.07 (1.22)	2.05 (0.94)	2.43 (1.21)	1.83 (1.69)	1.86 (1.57)	2.39 (1.14)	2.36 (1.35)	2.22 (1.54)
Feeding and Eating Disorders	2	25.50 (0.71)	23.00 (2.83)	19.00 (1.41)	12.00 (4.24)	0.04 (0.06)	0.55 (0.64)	0.44 (0.47)	1.77 (2.06)	0.00 (0.00)	0.16 (0.23)	0.22 (0.30)	0.17 (0.00)	0.30 (0.42)	0.00 (0.00)
Substance-Related and Addictive Disorders	1	17.00 (NA)	23.00 (NA)	24.00 (NA)	23.00 (NA)	0.42 (NA)	0.22 (NA)	1.00 (NA)	0.77 (NA)	0.30 (NA)	0.17 (NA)	0.29 (NA)	0.83 (NA)	0.20 (NA)	0.33 (NA)
Personality Disorders	9	15.80 (5.98)	20.76 (5.53)	16.78 (5.43)	14.59 (5.84)	1.27 (0.91)	1.39 (1.10)	0.92 (0.83)	1.62 (1.24)	1.24 (1.04)	0.70 (0.62)	1.06 (1.04)	0.98 (1.02)	0.67 (0.63)	1.41 (1.18)

IRI-PD: IRI personal distress; IRI-EC: IRI empathic concern; IRI-PT: IRI perspective taking; IRI-FS: IRI fantasy; SCL-SOM: SCL-90-R somatisation; SCL-OC: SCL-90-R obsessive-compulsive; SCL-INT: SCL-90-R interpersonal sensibility; SCL-DEP: SCL-90-R depression; SCL-ANX: SCL-90-R anxiety; SCL-HOS: SCL-90-R anger-hostility; SCL-PHOB: SCL-90-R phobic-anxiety; SCL-PAR: SCL-90-R paranoid ideation; SCL-PSY: SCL-90-R psychoticism; SCL-SLEEP: SCL-90-R sleep difficulties.

of each member of the work team on the case, the work team either endorsed or did not endorse the proposed diagnosis and level of organisation. Of the patients, 53% received unanimous consensus after the first meeting, while 32% received unanimous consensus after the second meeting. In the remaining 15% of cases, a third interview was proposed by one of the three members who had not seen the patients, and agreement among at least three out of four of the mental health professionals was reached after the third meeting. Incidentally, 60% of the patients who had already undergone previous admissions to the psychiatric unit received the same diagnosis. In terms of the *PDM-2* level of personality organisation, the decision-making process was easier. This was likely due to the lower number of possible categories among which to choose. Seventy-eight per cent of the patients received unanimous consensus after the first meeting; the remaining 22% received unanimous consensus after the second meeting.

The descriptive statistics of the IRI and SCL-90-R results for patients by gender, level of personality organisation, and *DSM-5* category are shown in **table 2**.

Materials

Interpersonal Reactivity Index

The IRI (Albiero et al., 2006; Davis, 1983) is a self-administered questionnaire lasting approximately five to ten minutes. It discriminates the cognitive and affective, as well as the self-oriented and other-oriented components of empathy. It consists of 28 items comprising four subscales: personal distress, empathic concern, perspective taking, and fantasy. Personal distress and empathic concern subscales contribute to the affective dimension of empathy, while the perspective taking and fantasy subscales contribute to the cognitive dimension. More relevant to our purposes, the personal distress subscale assesses a subject's tendency to experience feelings of discomfort and self-oriented anxiety in contexts of interpersonal tension when another person experiences something negative (i.e., self-oriented empathy). The empathic concern subscale evaluates the subject's tendency to experience other-oriented feelings of warmth, compassion, and concern towards other people undergoing negative experiences (i.e., other-oriented empathy).

Analytical strategy

To determine the best-fitting model to describe the relationship between empathy and level of personality organisation, we analysed the data using multinomial logistic models. We performed a model selection strategy using a procedure to identify the best-fitting model (e.g., see Fox, 2015). Then, starting from the null model (*M0*—i.e., the model that includes intercept only and no predictors), we constructed the various models developed from the theoretical premises. After the null model, we explored four models with each model including one IRI empathy subscale at a time. We used the likelihood ratio test to compare the models, taking into account the corrected Akaike's information criterion (AICc; Sugiura, 1976). ΔAICc indicates the differences between the null model (*M0*) and each subsequent model; a positive ΔAICc value implies that a given model is better than the null model. To compare the relative evidence for each model, we calculated the relative probability for each model compared to the null model (*l*) using the following formula: $l = exp[\Delta AICc/2]$ (Burnham et al., 2011). For

example, an l value of 7 indicates that a model is seven times more likely than the null model. More generally, the higher the *l*, the more likely the model is compared to the null model, thus providing a better fit to the data. The same strategy was also used for investigating the relationship between empathy and psychiatric diagnosis.

All analyses were performed using the R program version 4.1.1 (R Core Team, 2021). To compute AICc, the R package AICcmodavg version 2.3-1 (Mazerolle, 2020) was used. Missing values in the IRI (1.27%) were replaced with the mean of the corresponding subscale.

Results

Following the procedure described in the Analytical Strategy section to test our first hypothesis, the best model for describing the level of personality organisation was found to be *M1*, which includes self-oriented empathy as the predictor. Comparing ΔAICc, *M1* explained the data 25 times better than the null model. Model *M1* indicated that for every unit change in self-oriented empathy, the odds of having a psychotic level of personality organisation increases by 17% (C.I. 5–33%). Details of the multinomial process and the indices that guided the selection of the best model are shown in **table 3**.

Table 3. *Model comparison for levels of personality organisation*

	AICc	ΔAICc	l		Model
M0	83.44	0	1	1	
M1	76.95	6.48	25.53		IRI-PD
M2	85.05	-1.61	0.45		IRI-EC
M3	84.38	-0.95	0.62		IRI-PT
M4	85.39	-1.95	0.38		IRI-FS

AICc: corrected Akaike Information Criterion; ΔAICc: difference with the null model (M0); l: relative likelihood for each model compared to the null model (M0) with the formula *l = exp[ΔAICc/2]*. Greater ΔAICc = better model. IRI-PD: IRI personal distress; IRI-EC: IRI empathic concern; IRI-PT: IRI perspective taking; IRI-FS: IRI fantasy.

Regarding the second hypothesis, the best model for describing patients' psychiatric diagnoses was the *M0*—i.e., the null model—indicating that none of the four IRI subscales was a good predictor of the *DSM-5* categories. Details of the multinomial process and the indices that guided the selection of the best model are shown in **table 4**.

Table 4. *Model comparison for level of DSM-5 categories*

	AICc	ΔAICc	l		Model
M0	257.55	0	1	1	
M1	226.79	-9.24	0.01		IRI-PD
M2	224.72	-7.17	0.03		IRI-EC
M3	229.42	-11.87	< 0.01		IRI-PT
M4	229.77	-12.22	< 0.01		IRI-FS

AICc: corrected Akaike Information Criterion; ΔAICc: difference with the null model (M0); l: relative likelihood for each model compared to the null model (M0) with the formula l = exp[ΔAICc/2]. Greater ΔAICc = better model. IRI-PD: IRI personal distress; IRI-EC: IRI empathic concern; IRI-PT: IRI perspective taking; IRI-FS: IRI fantasy.

Discussion

The self-oriented empathy, evaluated with the IRI personal distress subscale, was the one—among the four IRI subscales—that best explained the level of personality organisation in the consecutively recruited considered psychiatric sample. In other words, although counterintuitive, the higher an individual's self-oriented empathy is, the more the individual seems prone to low levels of personality functioning. Namely, our principal hypothesis was confirmed by the comparison of multinomial models: the model with self-oriented empathy as an independent variable explained data 25 times better than the null model. Notably, self-oriented empathy is a component of the affective dimension of empathy, so much so that one could argue this dimension is the one that explains the level of personality organisation. However, the IRI empathic concern subscale—i.e., other-oriented empathy—is also related to the affective dimension of empathy. If it were the affective dimension of empathy that was relevant in explaining the level of personality organisation, empathic concern, as well as personal distress, should also play a role in explaining it Instead, in fact, the model using empathic concern subscale as an explanatory variable explains data worse than the null model does (see Methods section). Our secondary hypothesis, concerning self-oriented empathy as irrelevant in terms of its explicative power for psychiatric diagnosis, was confirmed. Analogous to the main hypothesis, the secondary hypothesis was evaluated via a series of multinomial models.

Psychiatric diagnosis according to the nosographic criteria of the *DSM-5*—except in the case of clearly defined personality disorders (e.g., borderline personality disorder)—does not consider an individual's underlying personality organisation (e.g., major depression or PTSD can occur at any level of personality organisation), and self-oriented empathy does not seem to play a role in this classification, which is in line with our secondary hypothesis.

Although patients were recruited via consecutive sampling and not via randomised controlled trial, hence jeopardizing the generalizability of our results, such findings are intriguing and encourage further analyses on the self- and other-oriented distinction of empathy in the clinical context.

Our findings, in line with the few previous studies' indirect suggestions, are consistent with many theoretical contributions, from the more traditional psychodynamic to the more recent ones, although not explicitly expressed in terms of "self-oriented empathy." Namely, both traditional psychodynamic perspectives on the role of empathy in human development (Eisenberg & Eggum, 2009; Eisenberg & Fabes, 1992; Kohut, 1978) and the more recent *p* factor–related one (Caspi et al., 2014) are consistent with the idea that the hypertrophic focus on the self—due to the efforts to maintain self-cohesion, auto-regulation, and internal stability against environmental uncertainty/unresponsiveness—can explain personality organisation. Generally speaking, relationships between children and their parents that are characterised by a global configuration of a lack of reciprocity and disavowing the child's emotional or physical needs—as if the parents do not recognise the child's psychological existence (Schimmenti, 2013)—seem to be largely driven by the basic absence of parents' empathic behaviours. Such painful relationships can be defined as relational or developmental traumas (Schimmenti & Caretti, 2010, 2016) and often contribute to impairment in individuals' personality organisation (Bifulco & Schimmenti, 2019) in people who in turn will likely not be able to express appropriate empathy.

Considering the distinction between self- and other-oriented empathy, it is very likely that the early relational trauma would trigger personal distress mechanisms in terms of high self-oriented, instead of other-oriented, empathy. This perspective can be conceived as in line with Davis's assumption (1980), inspired by Hoffman (1976)—according to which the child first expresses self-oriented empathy and only later, if supported in their development, can develop an other-oriented attitude. Such a concept nicely fits with Eisenberg's perspective (2009; 1992), in which personal distress results from the inability to manage in an efficacious and flexible way one's own emotional arousal, which can be triggered in response to others' suffering. Therefore, eventually, in the case of relational trauma, empathy would be exclusively addressed towards the self rather than developing towards the others (i.e., prosocial concern; Eisenberg & Eggum, 2009; Eisenberg & Fabes, 1992).

Even all the recent developments of attachment theory (Fonagy & Luyten, 2018) are also related to this perspective through the concept of mentalisation. In experiencing stressful life events and specifically handling others' suffering, the child, in a self-referential, agitated, but ineffective way will likely look for holding devices for the emotional arousals they feel. The child may possibly be characterised by chronic distress; hence, developing a hypertrophic, rigid attentional focus towards the self. In adulthood, relationally traumatised individuals will unlikely be able to access mutual regulation with another person, therefore ignoring their otherness or blending with them without keeping a mature distance. Such a lack of mutual regulation might develop in a poorly integrated personality (i.e., in a low level of personality organisation). Namely, lack of parental empathy towards children could contribute to their developmental trajectory toward psychopathology. Some forms of character organisation, such as narcissism or psychopathy, show indeed a severe lack of affective empathy (De Brito et al., 2021; Urbonaviciute & Hepper, 2020), while others, such as hysteria/histrionism, show deficits in cognitive empathy (Ritzl et al., 2018). Most likely, these defects result from not having experienced empathy from parents, especially in narcissism and psychopathy.

Moreover, in Kohut's model, in which empathy defect assumes a transgenerational perspective, an early lack of parental empathy could interfere with the healthy development of children's psychic apparatus. In his own words, "Empathy, the accepting, confirming, and understanding human echo evoked by the self, is a psychological nutrient without which human life as we know and cherish it, could not be sustained" (Kohut, 1978, p. 705). Thus, from a Kohutian perspective, if empathic relations between child and caregiver are insufficient or lacking in the early life stages, the self-object needs cannot be met, hence projecting the root of potentially all psychopathological forms in adulthood (McLean, 2007). As a result, individuals with personality disorders/psychiatric diseases are often incapable of recognising emotions and responding to them congruently (Kaluzeviciute, 2020), thus characterising their dysfunctional nuclei also in terms of empathic attitude.

Moreover, a recent theoretical perspective, which indirectly supported our theoretical hypotheses and results interpretation, was related to the *p* factor (Caspi et al., 2014). The *p* factor is considered an

invariant and transversal component in all forms of psychopathologies. In turn, it represents constructs such as impulsive responsivity to emotion (Carver et al., 2017), the tendency to experience an unpleasant affective state (Lahey et al., 2017), and dysfunctions in emotion regulation (Snyder et al., 2015). The idea is that the invariant and transversal *p* factor may well reflect a single level of personality organisation, independent from a specific diagnosis (see Bruno et al., 2020).

The most recent theorisations of the *p* factor have described it as the expression of the rigidity of meaning-making (Venuleo et al., 2020) and considered it crucial to the concept of self-referentiality (M. L. Elliott et al., 2018; Venuleo et al., 2020), which also seems to be deeply interconnected to self-oriented empathy. The point of view on *p* as rigidity arises from the theoretical model of the Phase Space of Meaning to psychopathology (Venuleo et al., 2020). The Phase Space of Meaning model is based on an inferential model of cognition, implying inherent self-referentiality. The model conceives the operative rules regulating cognitive processes being the search, conservation, or restoring of the fit of the forecast that the individual performs concerning the anticipation of the subsequent state of the world (Salvatore et al., 2021). This rule implies that human cognition works with the aim of consistency among its subsequent inner states—that is, between the forecasting representation of the incoming environmental state and the subsequent forecasted inner representations, in terms of the affective meaning-making embodied processes. In other words, according to this model, self-referentiality is crucial because it explains how detecting environmental states operates in dialectic interplay with the need to ensure the capacity of fit is stable in its inner organisation over time. Hence, in synthesis, the more rigidity is present in meaning-making, with an attendant increase in self-referentiality, the less that information from the environment can be taken into account. In turn, the less that environmental information is considered in the cognitive system, the higher the psychopathology susceptibility is. Such a vision of psychopathology has received support from a neural network simulation study, which provided initial direct empirical bases for the *p* factor as rigidity in meaning-making (Kleinbub et al., 2021). The dialectic interplay at the core of the mental functioning conceives mental disorders as characterised by a lack of balance between the inferential abilities from the environment and the self-referential rigidity. In other words, the attitude of interpreting and responding to different self–environmental patterns in a rigid and stable way among an individual's subsequent inner states occurs at the expense of adaptive regulation (which the informative power provides). Although such a model does not explicitly refer to empathy, the perspective of self-oriented empathy as a crucial aspect to explain psychopathology in terms of low personality organisation, independently from a specific diagnosis, nicely fits in conceiving the rigidity of meaning-making/cognitive processes as the *p* factor.

However, the results can also be interpreted in the opposite way. Nonetheless, from our perspective, empathy is a phenomenon and characteristic that is established during early childhood, while psychopathology often reveals later in life—as in the case of our sample. Although these two phenomena are considered to be associated (Decety & Moriguchi, 2007), the nature of our data and the analyses performed do not permit the exclusion of the opposite process. Our study presents some limitations: the sample size prevented us to go further in-depth with specific analyses addressed

to the many facets of personality such as focusing on other patterns of patients' personality dimensions (e.g., extraverted vs. introverted polarity). Moreover, unfortunately, our study suffers from the significant limitation of consecutive sampling. Such a pragmatic aspect hindered the generalisability of the results.

Despite these limitations, several aspects could be addressed in future studies. As empathy is recognised as one of the common factors that best permits the prediction of good therapeutic outcomes (R. Elliott et al., 2018), studying it from the neural and somatic correlate in a *vis-à-vis* interaction—and therefore in its self- and other-oriented components—might have interesting consequences in clinical practice. Interpersonal physiology, investigated ecologically through electrodermal activity, may be the first-choice methodology to disentangle the self- and other-oriented components, as clinical field research has already identified how physiological synchronisation in interacting dyads is related to affective empathy (Kleinbub, Talia, et al., 2020; Palmieri et al., 2018). For example, applicative fallout could be the implementation in psychotherapy students' training the measurement of other-oriented empathy via interpersonal biofeedback setup based on electrodermal activity (Gennaro et al., 2019; Kleinbub, Mannarini, et al., 2020).

From a broader perspective, if the present research hypothesis should be confirmed by further studies implemented with a more formal methodology appropriate for gathering information on clinical samples—e.g., with randomised control trials—results could be useful to implement diagnostic criteria both in the *DSM-5* and *PDM-2* for an ad-hoc section that would more thoroughly take into account empathy functioning, especially in terms of the self-oriented empathy component.

Conclusions

Notwithstanding the large amount of literature on affective versus cognitive empathy, the most neglected distinction between self-oriented versus other-oriented empathy may help in differentiating the evolutionary trajectories in terms of different personality organisations. Namely, high self-oriented empathy seems to be associated with lower personality organisation, in terms of better explicative power. From a broader perspective, our idea is to consider empathy and its facets as a fundamental characteristic to assess personality organisation independently of the taxonomic characterisation of DSM-5 disorders.

Such a result is theoretically in line with traditional psychodynamic models and with most modern definitions of the *p* factor in particular, which is conceived of as rigidity in meaning-making processes. Although there are many limits in our pragmatic study, findings, if confirmed in further studies, can be useful in clinical research and practice.

Acknowledgements

References

Albiero, P., Ingoglia, S., & Lo Coco, A. (2006). Contributo all'adattamento italiano dell'Interpersonal Reactivity Index. *Testing Psicometria Metodologia*, *13*(2), 107–125.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Association Publishing.

Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and Empathy: Two Qualitatively Distinct Vicarious Emotions with Different Motivational Consequences. *Journal of Personality*, *55*(1), 19–39. https://doi.org/10.1111/J.1467-6494.1987.TB00426.X

Berger, P., Bitsch, F., Jakobi, B., Nagels, A., Straube, B., & Falkenberg, I. (2019). Cognitive and emotional empathy in patients with schizophrenia spectrum disorders: A replication and extension study. *Psychiatry Research*, *276*, 56–59. https://doi.org/10.1016/j.psychres.2019.04.015

Bifulco, A., & Schimmenti, A. (2019). Assessing child abuse: "We need to talk!" *Child Abuse & Neglect*, *98*, 104236. https://doi.org/10.1016/J.CHIABU.2019.104236

Bruno, A., Mattei, A., Arnone, F., Barbieri, A., Basile, V., Cedro, C., Celebre, L., Mento, C., Rizzo, A., Silvestri, M. C., Rosaria, M., Muscatello, A., Zoccali, R. A., & Pandolfo, G. (2020). Lifetime psychiatric comorbidity and diagnostic trajectories in an Italian psychiatric sample. *Clinical Neuropsychiatry*, *17*(5), 263–270. https://doi.org/10.36131/cnfioritieditore20200501

Burnham, K. P., Anderson, D. R., & Huyvaert, K. P. (2011). AIC model selection and multimodel inference in behavioral ecology: Some background, observations, and comparisons. *Behavioral Ecology and Sociobiology*, *65*(1), 23–35. https://doi.org/10.1007/s00265-010-1029-6

Carver, C. S., Johnson, S. L., & Timpano, K. R. (2017). Toward a Functional View of the p Factor in Psychopathology. *Clinical Psychological Science*, *5*(5), 880–889. https://doi.org/10.1177/2167702617710037

Caspi, A., Houts, R. M., Belsky, D. W., Goldman-Mellor, S. J., Harrington, H., Israel, S., Meier, M. H., Ramrakha, S., Shalev, I., Poulton, R., & Moffitt, T. E. (2014). The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clinical Psychological Science*, *2*(2), 119–137. https://doi.org/10.1177/2167702613497473

Cusi, A., MacQueen, G. M., & McKinnon, M. C. (2010). Altered self-report of empathic responding in patients with bipolar disorder. *Psychiatry Research*, *178*(2), 354–358. https://doi.org/10.1016/j.psychres.2009.07.009

Davis, M. H. (1980). A Multidimensional Approach to Individual Differences in Empathy. *JSAS Catalog of Selected Documents in Psychology*, *10*(85), 1–17.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037/0022-3514.44.1.113

De Brito, S. A., Forth, A. E., Baskin-Sommers, A. R., Brazil, I. A., Kimonis, E. R., Pardini, D., Frick, P. J., Blair, R. J. R., & Viding, E. (2021). Psychopathy. *Nature Reviews Disease Primers*, *7*(1), 1–21. https://doi.org/10.1038/s41572-021-00282-1

De Panfilis, C., Schito, G., Riccardi, S., Roscigno, F., & Marchesi, C. (2018). Obsessive-compulsive personality disorder and personality organization: Implications for psychosocial functioning. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, *15*(4), 251–257.

Decety, J., & Jackson, P. L. (2006). A Social-Neuroscience Perspective on Empathy. *Current Directions in Psychological Science*, *15*(2), 54–58. https://doi.org/10.1111/J.0963-7214.2006.00406.X

Decety, J., & Moriguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: implications for intervention across different clinical conditions. *Biopsychosocial Medicine*, *1*, 22. https://doi.org/10.1186/1751-0759-1-22

Derogatis, L. R., & Unger, R. (2010). Symptom Checklist-90-Revised. In *The Corsini Encyclopedia of Psychology* (pp. 1–2). John Wiley & Sons, Inc. https://doi.org/10.1002/9780470479216.corpsy0970

Dziobek, I., Rogers, K., Fleck, S., Bahnemann, M., Heekeren, H. R., Wolf, O. T., & Convit, A. (2008). Dissociation of Cognitive and Emotional Empathy in Adults with Asperger Syndrome Using the Multifaceted Empathy Test (MET). *Journal of Autism and Developmental Disorders*, *38*(3), 464–473. https://doi.org/10.1007/s10803-007-0486-x

Eisenberg, N., & Eggum, N. D. (2009). Empathic responding: Sympathy and personal distress. In J. Decety & W. Ickes (Eds.), *The Social Neuroscience of Empathy*. MIT Press.

Eisenberg, N., & Fabes, R. A. (1992). Emotion, regulation, and the development of social competence. In M. S. Clark (Ed.), *Emotion and Social Behavior* (pp. 119–150). Sage Publications, Inc.

Elliott, M. L., Romer, A., Knodt, A. R., & Hariri, A. R. (2018). A Connectome-wide Functional Signature of Transdiagnostic Risk for Mental Illness. *Biological Psychiatry*, *84*(6), 452–459. https://doi.org/10.1016/J.BIOPSYCH.2018.03.012

Elliott, R., Bohart, A. C., Watson, J. C., & Murphy, D. (2018). Therapist empathy and client outcome: An updated meta-analysis. *Psychotherapy*, *55*(4), 399–410. https://doi.org/10.1037/PST0000175

First, M. B., Williams, J. B., Karg, R. S., & Spitzer, R. L. (2017). *SCID-5-CV Starter kit. Intervista clinica strutturata per i disturbi del DSM-5 – Versione per il clinico (edizione italiana a cura di Fossati, A., & Borroni, S.)*. Raffaello Cortina.

First, M. B., Williams, J. B. W., Karg, R. S., & Spitzer, R. L. (2016). *User's Guide for the Structured Clinical Interview for DSM-5 Disorders-Clinician Version (SCID-5-CV)*. American Psychiatric Association.

Fliess, R. (1942). The Metapsychology of the Analyst. *The Psychoanalytic Quarterly*, *11*(2), 211–227. https://doi.org/10.1080/21674086.1942.11925496

Fonagy, P., & Luyten, P. (2018). Attachment, mentalizing, and the self. In W. J. Livesley & R. Larstone (Eds.), *Handbook of personality disorders: Theory, research, and treatment* (pp. 123–140). The Guilford Press.

Fox, J. (2015). *Applied Regression Analysis and Generalized Linear Models*. Sage Publications.

Freud, S. (1916). *Wit and its Relation to the Unconscious*. Moffat Yard & Co.

Gallese, V. (2007). Before and below 'theory of mind': embodied simulation and the neural correlates of social cognition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *362*(1480), 659–669. https://doi.org/10.1098/rstb.2006.2002

Ganczarek, J., Hünefeldt, T., & Belardinelli, M. O. (2018). From "Einfühlung" to empathy: exploring the relationship between aesthetic and interpersonal experience. *Cognitive Processing*, *19*, 141–145. https://doi.org/10.1007/s10339-018-0861-x

Gennaro, A., Kleinbub, J. R., Mannarini, S., Salvatore, S., & Palmieri, A. (2019). Training in psychotherapy: A call for embodied and psychophysiological approaches. *Research in Psychotherapy: Psychopathology, Process and Outcome*, *22*(3), 333–343. https://doi.org/10.4081/ripppo.2019.395

Greenson, R. (1960). Empathy and its Vicissitudes. *The International Journal of Psychoanalysis*, *41*, 418–424.

Guhn, A., Merkel, L., Hübner, L., Dziobek, I., Sterzer, P., & Köhler, S. (2020). Understanding versus feeling the emotions of others: How persistent and recurrent depression affect empathy. *Journal of Psychiatric Research*, *130*, 120–127. https://doi.org/10.1016/j.jpsychires.2020.06.023

Harari, H., Shamay-Tsoory, S. G., Ravid, M., & Levkovitz, Y. (2010). Double dissociation between cognitive and affective empathy in borderline personality disorder. *Psychiatry Research*, *175*(3), 277–279. https://doi.org/10.1016/j.psychres.2009.03.002

Hoffman, M. L. (1976). Empathy, role-taking, guilt, and development of altruistic motives. In T. Lickona (Ed.), *Moral development and behavior: theory, research, and social issues.*

Holt, Rinehart, & Winston.

Ilgunaite, G., Giromini, L., & Di Girolamo, M. (2017). Measuring empathy: A literature review of available tools. *BPA - Applied Psychology Bulletin*, *65*(280), 2–28.

Kaluzeviciute, G. (2020). The role of empathy in psychoanalytic psychotherapy: A historical exploration. *Cogent Psychology*, *7*(1), 1748792. https://doi.org/10.1080/23311908.2020.1748792

Kernberg, O. F. (1984). *Severe personality disorders*. Yale Univ. Press.

Kleinbub, J. R., Mannarini, S., & Palmieri, A. (2020). Interpersonal Biofeedback in Psychodynamic Psychotherapy. *Frontiers in Psychology*, *11*, 1655. https://doi.org/10.3389/fpsyg.2020.01655

Kleinbub, J. R., Talia, A., & Palmieri, A. (2020). Physiological Synchronization in the Clinical Process: A Research Primer. *Journal of Counseling Psychology*, *67*(4), 420–437.

Kleinbub, J. R., Testolin, A., Palmieri, A., & Salvatore, S. (2021). The phase space of meaning model of psychopathology: A computer simulation modelling study. *PLOS ONE*, *16*(4), e0249320. https://doi.org/10.1371/JOURNAL.PONE.0249320

Kohut, H. (1978). The psychoanalyst in the community of scholars. In P. H. Ornstein (Ed.), *The Search for the Self: Selected Writings of Heinz Kohut 1978-1981*. International Universities Press.

Lahey, B. B., Krueger, R. F., Rathouz, P. J., Waldman, I. D., & Zald, D. H. (2017). A hierarchical causal taxonomy of psychopathology across the life span. *Psychological Bulletin*, *143*(2), 142–186. https://doi.org/10.1037/bul0000069

Lanzoni, S. (2012). Empathy in Translation: Movement and Image in the Psychological Laboratory. *Science in Context*, *25*(3), 301–327. https://doi.org/10.1017/S0269889712000154

Lingiardi, V., & McWilliams, N. (2017). *Psychodynamic diagnostic manual: PDM-2* (V. Lingiardi & N. McWilliams (eds.)). The Guilford Press.

Mazerolle, M. J. (2020). *AICcmodavg: Model selection and multimodel inference based on (Q)AIC(c)* (R package version 2.3-1). https://cran.r-project.org/package=AICcmodavg

McLean, J. (2007). Psychotherapy with a Narcissistic Patient Using Kohut's Self Psychology Model. *Psychiatry*, *4*(10), 40–47.

McWilliams, N. (2011). *Psychoanalytic diagnosis: Understanding personality structure in the clinical process* (2nd ed.). Guilford Press.

Palmieri, A., Kleinbub, J. R., Calvo, V., Benelli, E., Messina, I., Sambin, M., & Voci, A. (2018). Attachment-security prime effect on skin-conductance synchronization in psychotherapists: An empirical study. *Journal of Counseling Psychology*, *65*(4), 490–499. https://doi.org/10.1037/cou0000273

Pick, E., Kleinbub, J. R., Mannarini, S., & Palmieri, A. (2019). Empathy in neurodegenerative diseases: A systematic review. *Neuropsychiatric Disease and Treatment*, *15*, 3287–3304. https://doi.org/10.2147/NDT.S225920

Prunas, A., Sarno, I., Preti, E., Madeddu, F., & Perugini, M. (2012). Psychometric properties of the Italian version of the SCL-90-R: A study on a large community sample. *European Psychiatry*, *27*(8), 591–597. https://doi.org/10.1016/j.eurpsy.2010.12.006

R Core Team. (2021). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.r-project.org/

Ritzl, A., Csukly, G., Balázs, K., & Égerházi, A. (2018). Facial emotion recognition deficits and alexithymia in borderline, narcissistic, and histrionic personality disorders. *Psychiatry Research*, *270*, 154–159. https://doi.org/10.1016/J.PSYCHRES.2018.09.017

Salvatore, S., De Luca Picione, R., Cozzolino, M., Bochicchio, V., & Palmieri, A. (2021). The Role of Affective Sensemaking in the Constitution of Experience. The Affective Pertinentization Model (APER). *Integrative Psychological and Behavioral Science*, 1–19. https://doi.org/10.1007/s12124-020-09590-9

Schimmenti, A. (2013). Trauma evolutivo: Origini e conseguenze dell'abuso e della trascuratezza nell'infanzia [Developmental trauma: On the origins and consequences of child abuse and neglect]. In V. Caretti, G. Craparo, & A. Schimmenti (Eds.), *Memorie traumatiche e mentalizzazione. Teoria, ricerca e clinica* (pp. 7–12). Astrolabio Ubaldini.

Schimmenti, A., & Caretti, V. (2010). Psychic retreats or psychic pits?: Unbearable States of mind and technological addiction. *Psychoanalytic Psychology*, *27*(2), 115–132. https://doi.org/10.1037/A0019414

Schimmenti, A., & Caretti, V. (2016). Linking the overwhelming with the unbearable: Developmental trauma, dissociation, and the disconnected self. *Psychoanalytic Psychology*, *33*(1), 106–128. https://doi.org/10.1037/a0038019

Shamay-Tsoory, S. G. (2011). The Neural Bases for Empathy. *The Neuroscientist*, *17*(1), 18–24. https://doi.org/10.1177/1073858410379268

Snyder, H. R., Gulley, L. D., Bijttebier, P., Hartman, C. A., Oldehinkel, A. J., Mezulis, A., Young, J. F., & Hankin, B. L. (2015). Adolescent emotionality and effortful control: Core latent constructs and links to psychopathology and functioning. *Journal of Personality and Social Psychology*, *109*(6), 1132–1149. https://doi.org/10.1037/PSPP0000047

Sugiura, N. (1976). Further analysts of the data by Akaike's information criterion and the finite corrections. *Communications in Statistics - Theory and Methods*, *7*(1), 13–26. https://doi.org/10.1080/03610927808827599

Urbonaviciute, G., & Hepper, E. G. (2020). When is narcissism associated with low empathy? A meta-analytic review. *Journal of Research in Personality*, *89*, 104036. https://doi.org/10.1016/j.jrp.2020.104036

Venuleo, C., Salvatore, G., Ruggieri, R. A., Marinaci, T., Cozzolino, M., & Salvatore, S. (2020). Steps towards a unified theory of psychopathology: The phase space of meaning model. *Clinical Neuropsychiatry*, *17*(4), 236–252. https://doi.org/10.36131/cnfioritieditore20200405

Wang, W., Zhou, Y., Wang, J., Xu, H., Wei, S., Wang, D., Wang, L., & Zhang, X. Y. (2020). Prevalence, clinical correlates of suicide attempt and its relationship with empathy in patients with schizophrenia. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *99*, 109863. https://doi.org/10.1016/J.PNPBP.2020.109863

Zaki, J., & Ochsner, K. N. (2012). The neuroscience of empathy: progress, pitfalls and promise. *Nature Neuroscience*, *15*(5), 675–680. https://doi.org/10.1038/nn.3085