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TOWARD A MODEL OF SELF PATHOLOGY UNDERLYING PERSONALITY DISORDERS: NARRATIVES, METACOGNITION, INTERPERSONAL CYCLES AND DECISION-MAKING PROCESSES

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If we want to explain the links between the various and heterogeneous elements—symptoms, dysfunctional forms of behavior and poor social functioning—making up personality disorders, we need model a self pathology that portrays dysfunctions, the links among them, and how their interactions maintain disorders over time. In our view, the most likely elements of self pathology are: a. problematic contents (thoughts and emotions)—experienced subjectively as states of mind and organized in the form of narratives; b. shortfalls in the ability, termed metacognition, to reflect on mental states, both of oneself and of others; c. pathogenic interpersonal schemas; and d. maladaptive decision-making processes. These elements get altered in the various personality disorders and interact to form typical pathological organizations. This article seeks to describe a model of self pathology in personality disorders and discuss its current scientific status based on a literature review that spans several disciplines. The model is illustrated with an example of how the pathogenic elements can interact to form personality disorder. Lastly, the limitations and advantages of the model are discussed.

Personality Disorders (PDs) involve diverse problems: difficult interpersonal relationships, symptoms, behaviors preventing the achievement of primary goals, poor impulse control, and so on. To comprehend patients' behavior it is not enough to just list these problems; we also need to explain how these features co-occur and remain unchanged over the years. The explanation we offer is based on a description of how self-functions are damaged in PDs and how self-functions interact to form the various disorders. This makes it possible to build a model showing how heterogeneous factors interact to lead to unitary forms of functioning. We consider

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the following questions: a. What constitutes a PD?; b. Why do these with PD not adapt to their environment?; c. In what way do distinct psychopathological elements, all present in the same person, lead to particular forms of dysfunction?

Our goal is limited: We restrict ourselves to analysing clinical and experimental literature to show how we have sufficient knowledge to construct such a model although we cannot claim that our model has a solid empirical foundation. We start from a general definition which, even if not universally accepted, is considered a valid basis for discussion and is based on, or is compatible with, the conclusions of various authors (Allport, 1937; Benjamin, 1996; Cantor, 1990; Millon & Davis, 1996; Perris, 1999; Wakefield, 1992). In Livesley's opinion (1998; 2000), a PD involves:

> failures involving three major life tasks: a) failure to establish stable and integrated representations of self and others; b) maladaptive interpersonal functioning as indicated by the failure of [1) to develop the capacity for intimacy, 2) to function adaptively as an attachment figure, and 3) to establish affiliative relationships]; c) maladaptive societal functioning as indicated by deficit prosocial behavior, and inability to form cooperative relationships. (p. 143)

Personality disorder is therefore failure to adapt. The general definition in DSM IV TR (American Psychiatric Association, 2000) that PD involves enduring and maladaptive patterns of experience embracing cognition, emotion, interpersonal functioning and impulse control, rounds off Livesley's by adding a subjective experiential element to the definition. In the light of this definition, the earlier questions can be condensed into: What features of mental life lead persons to suffer, not integrate their representations of social interactions, and display interpersonal and social dysfunctions? In line with the constructivist tradition (Guidano & Liotti, 1983; Kelly, 1955; Neimeyer & Feixas, 1990; Winter, 1989), we hypothesize that PDs get perpetuated (at least partially) over time (Tickle, Heatherton, & Wittenberg, 2001) and PD patients consistently fail to find solutions to the problems in the areas identified above (Dimaggio, Semerari, Carcione, Nicolò & Procacci, 2006; Livesley, 2003; Maffei, 2002; Millon & Davis, 1996) because of underlying self pathology.

THE ELEMENTS OF SELF PATHOLOGY

To build a model of the self pathology underlying PDs, we need data rooted in the sciences dealing with how people adapt to social life: cognitive science, clinical theory, psychotherapy research, and personality psychology. We also then need to explain how the dysfunctional elements of the self are organized (Cervone & Shoda, 1999; Dimaggio, Carcione, Petrilli, Procacci, Semerari, & Nicolò, 2005; McAdams, 1994; Westen, 1998). Finally, the model needs to be expressed in a form that facilitates treatment planning (Livesley, 2003; Westen, 1998). We begin with hypotheses about which

elements of the self, when damaged, play a role in PDs and then show how these dysfunctions interact to perpetuate PDs over time. We propose that the self pathology underlying PDs involves problems with: (1) organizing subjective experience into narrative form; (2) the ability to represent one's own and others' minds; (3) interpersonal schemas; (4) decision-making reasoning processes.

The first element is the form and contents of subjective experience. PD patients often have intense and extremely negative experiences, from which they are unable to escape. Alternatively, some experiences are ego-syntonic but patients seek them compulsively—like the gratification due to another's presence in dependents or the feeling of superiority in narcissists—and this hinders social adaptation. Individuals communicate by telling stories, with meaning themes, emotions and their vision of the world. We therefore need to describe the cognitions and emotions typical of patients' self-narratives and how these stories are organized (or fail to be). The second is the ability to represent psychological states to oneself. PD patients have difficulty in building integrated representations of self and others. Our hypothesis is that this is due to dysfunctions in the ability to build metarepresentations. The third element is problematical interpersonal relationships. People possess preconceptions or cognitive schemas that are used to anticipate events and make sense of the myriad of stimuli impinging on them (Cottraux & Blackburn, 2001; Higgins & Bargh, 1987; Kelly, 1955; Neisser, 1976; Piaget, 1964). Segal (1988) defined schemas as: "organized elements of past reactions and experience that form a relatively cohesive and persistent body of knowledge capable of guiding subsequent perception and appraisals" (p. 147). Of particular importance are interpersonal schemas, which anticipate and attribute meaning to relationships (Baldwin, 1992). There are a limited number of interpersonal schemas in PDs and they mainly feature negative representations of the self vis-à-vis others represented as hostile, rejecting, distant, untrustworthy and so on. As a result patients, for example, suffer for the expectation that their goals will not be achieved because of the harm others are going to cause. They are often incapable of asking for help or co-operating because they foresee others not assisting. Moreover their anticipatively negative attitude evokes responses in others that are consistent with the schemas and reinforce their pathogenic expectations and dysfunctional behavior (Mitchell, 1988; Safran & Muran, 2000).

Lastly, we need to look at how people reason and choose. As part of general society, we have to opt between various possible actions and forms of conduct, e.g., whether to embark on a career requiring travel or to devote ourselves to our children. Making the right choices promotes adaptation, whereas dysfunctional choice mechanisms cause harm. PD patients find it difficult to set goals or self-regulate when they have set them (Clarkin, 2005; Dimaggio, Nicolò, Popolo, Semerari, & Carcione, 2006). Their decisions are often guided by heuristics and biases that lead them to adopt goal-reaching strategies doomed to failure.

SUBJECTIVE EXPERIENCE ORGANISED IN NARRATIVE FORM

To understand PDs, we need a theory that allows us to understand, explain, and use the many stories patients tell their clinicians about their lives. The self is a multifaceted structure. People pass from one form of self experience to another as situations and contexts change (Hermans & Dimaggio, 2004; Markus & Nurius, 1986; McAdams, 1999; Muran, 2001; Stiles, Osatuke, Glick, & Mackay, 2004). In a work interview, we might be shy and worried about the outcome, whilst on a date we might be eager and playful. Theoreticians from different schools affirm that people manage this complexity by organized self-information into a narrative form: They tell themselves and others stories to make sense of and communicate their experience. Over time, these stories change. Affectively-laden scenes remembered from our past, intensify with repetition and internal rehearsal to become overarching schemas for understanding interpersonal interactions. They then guide attention and may bias subsequent behavior to be consistent with their affective sequences and themes (Angus & McLeod, 2004; Conway & Pleydell-Pearce, 2000; Habermas & Bluck, 2000; Hermans, 1996; McAdams, 1999; Neimeyer, 2000; Salvatore, Dimaggio, & Semerari, 2004; Sarbin, 1986; Singer & Bluck, 2001; Tomkins, 1979). Starting with emotions functioning as a core, around which other elements (concepts, mental images, etc.) form networks of associations, mental scenes arise and in turn evoke other emotions and images to form stories (Damasio, 1994; Gazzaniga, 1988). Some primary emotions give rise to specific micro-narratives (Smith & Lazarus, 1993). Psychotherapy research shows how people spend the majority of the time in sessions telling stories about their interactions (Luborsky, Barber, & Diguer, 1992) and how there are specific narratives for certain disorders (Gonçalves & Machado, 1999).

The thought themes, emotions, and forms of communication that cluster together in a narrative give rise to the subjective experience of a state of mind (Horowitz, 1998; Semerari et al., 2003a). A state of mind is a recurring form of experience, featuring the simultaneous and repeated appearance of certain emotions, thoughts and somatic sensations, narrated with particular facial expressions and intonations of the voice (Horowitz, 1998; Stiles, 1999). A clinician can deduce a patient's state of mind from the latter's in-session narratives and non-verbal communication style (Semerari et al., 2003a). It is easy to distinguish when such states alternate with each other. While an individual is narrating, there are changes in tone of voice, contents and emotional experience, new characters come on stage and the place and time of the action alter. These are signals of the passing from one state of mind to another.

According to Dialogical Self Theory (Bakthin, 1984; Hermans, 1996; Hermans & Dimaggio, 2004), the characters inhabiting intra-psychical and shared narratives are in a continuous dialogue with each other to negotiate the meaning of events. An individual is populated by various characters, or voices, and the one with the dominant features at any time

gets identified as “I.” Each character embodies a facet of the self and the characters can be pinpointed in patients’ discourses, in both written texts (studying transcripts, Stiles et al., 2004) and inflexions of the voice (analyzing audio-files: Osatuke, Glick, Gray, & Stiles, 2004).

Given these theoretical, clinical, and experimental observations, it is plausible to postulate that when PD patients tell stories they experience them subjectively as distinct states of mind populated by a cast of voices typical of their disorder. An additional hypothesis is that each PD is characterized by a typical set of states of mind (Dimaggio, Semerari et al., 2006). For example, narcissistic personality disorder is characterized by the following states: a. grandiose; b. depressed/terrified; c. detached emptiness; and d. impulsive and angry state with tendency to acting-out (Dimaggio, Semerari, Falcone, Carcione, Nicolò, & Procacci, 2002). Young’s (1990) descriptions of narcissists’ self-states are similar: self-aggrandizer, detached self-soother, and vulnerable child. Studies using repertory grids (Kelly, 1955) show that borderline disorder is characterized by a particular set of states termed: ideal, abuser rage, powerless victim, angry victim, coping, and zombie (Bennett, Pollock, & Ryle, 2005; Golynkina & Ryle, 1999).

Explaining PDs in narrative terms induces clinicians to build up a map of the whole set of stories their patients tell. Clinical experience and session transcript analysis show that, even in the most serious PDs, where experience is most limited, e.g., paranoid (Salvatore, Nicolò, & Dimaggio, 2005), the self is multifaceted and a certain number of themes can be observed. The narrative approach is therefore in line with the criticisms made of the DSM, i.e., that it portrays disorders in an almost caricatural way, pointing to only one facet of a personality or one narrative theme. The research by Westen & Shedler (2000; Shedler & Westen, 2004) shows that PD patients’ narratives do indeed concentrate on one dominant theme, but there are also likely to be secondary themes, generally not included in the corresponding DSM category.

Millon and Davis (1996) similarly consider PDs multifaceted entities. In their model each disorder has a central part composed of several elements (beliefs, behavioral styles, etc.), which constitute the core of its prototype, plus secondary facets representing its subtypes. We can, for example, talk of avoidant individuals with dependent traits, which, translated into narrative terminology, signifies swinging between a dominant theme—sensitivity to critical opinions and to feeling ashamed, with a tendency to isolation—and dependency on reassuring and nonjudgmental figures, by whom one lets oneself be guided in one’s actions.

Narrative theory has the advantage of being easy to apply clinically: The amount of inference needed to identify the principal self states contents is minimal. Moreover, thinking in term of narrative themes is a good basis for research on the psychotherapy process, both via methods pinpointing dominant constructs and narratives, such as Kelly’s repertory grids or self-investigation (Hermans & Hermans-Jansen, 1995), and via others

identifying problematic contents and states of mind, such as the analysis of session transcripts (Luborsky & Crits-Christoph, 1990; Stiles et al., 2004; Semerari et al., 2003a).

In general, even if it is acknowledged that there needs to be an understanding of how subjective experience gets organized in narrative form in PDs (Livesley, 2001), it rarely occurs. Westen (1997) suggested that clinicians of all theoretical orientations assess personality pathology by listening to the narratives patients tell about their lives and significant relationships. It is to be hoped that the work of various authors using the narrative paradigm to assess patients' narratives (see Angus & McLeod, 2004) gets applied on a wide scale to PDs.

METACOGNITIVE SKILLS

Cognitive science, developmental psychology, clinical practice, and philosophy (Dennett, 1991) agree on some basic assumptions for comprehending personality dysfunctions. The first is that there needs to be a set of mechanisms by which an individual can perceive and express inner experience in language, and also read others' minds accurately and sensitively. For example, the physiological activation of an unpleasant arousal can induce individuals to distance themselves from a stimulus, but they do not necessarily recognize it as fear (Zajonc, 1980). The processes by which one is able to identify inner states, to label them linguistically and reason about them, to ascribe states of mind to others on the basis of their behavior and to reason about states of mind, are termed: theory of mind (Leslie, 1987; Baron-Cohen, Leslie, & Frith, 1985), reflexive function or mentalization (Fonagy, Gergely, Jurist, & Target, 2002), psychological mindedness (Applebaum, 1973; Conte, Plutchik, Jung, Picard, Karasu, & Lotterman, 1990), metacognition (Flavell, Miller, & Miller, 1993), and metarepresentative or metacognitive skills (Semerari et al., 2003b; Sperber, 2000).

There is currently a heated debate about the nature and origins of metacognition. Some maintain that reading others' minds is done using a true and proper Theory of Mind (ToM), which gets developed from an innate brain module (Leslie, 1994); others that this skill is essentially interpersonal and depends on how an infant interacts with caregivers right from birth (Carpendale & Lewis, 2004; Tomasello, Carpenter, Call, Behne, & Moll, 2005). The existence of the so-called "mirror neurons" supports the interpersonal hypothesis. Mirror neurons get activated both when individuals are about to perform an action, and when they see the same emotion or behavior activated in conspecifics (see Gallese & Lakoff for a review of this topic). As a result, the understanding of others does not need to be based on ToM for them to be represented in our minds in part as if they were ourselves. Despite the disagreements, several points appear to be sound and empirically based (Semerari, Dimaggio, Nicolò, Procacci, & Carcione, in press): (1) Specialized (Baron-Cohen et al., 1985; Tooby & Cosmides, 1992; Leslie, 1994; Murphy & Stich, 2000) mechanisms are re-

quired for psychological contents to be identified, processed, and integrated with other contents. For example, according to Nichols and Stich (2001), *detecting* inner thoughts and *reasoning* on them are separate skills. Detecting is the ability to identify specific mental contents in oneself. Reasoning is the ability to draw inferences about mental states and processes. One's reasoning skills are used in working out information about both one's own mental states and others'. In the opinion of Nichols and Stich, the experiments by Gopnik and Slaughter (1991), with tasks about understanding variations in desire, support the hypothesis that there is an uncoupling between detecting and reasoning. For example, three year old children are asked, before their snack time, whether they want to eat. They normally reply "yes." But if, after eating, they are asked whether, at the time of the first question, they wanted to eat, they tend to reply "no," showing that they are basing themselves on their current desire and are unaware of the variation therein. The authors' interpretation is that, while the identification of a current desire depends on a monitoring mechanism, which is already working well at that age, the possibility of recalling past desires and understanding variations depends on working out and reasoning processes, which are not yet working at that age. (2) Mechanisms involved in identifying and reasoning about states of mind and solving problems related to them can be inadequate or defective due to problems or lesions that to some extent are independent of the mental contents that they are processing. For example, autistics are unable to recognize all their own emotions and also find it difficult to identify their own thoughts (Baron-Cohen, 1995). (3) An inability to identify states of mind and reason about them has a negative impact on adaptation by causing symptoms and interpersonal problems (Dimaggio et al., 2006; Fonagy et al., 2002; Frith, 1992; Semerari et al., 2003b).

Several attempts have been made to apply these theories to clinical practice. As noted previously, autistics are thought to suffer from a serious theory of mind deficit. Schizophrenics do not perceive their inner dialogues as being their own (McGuire et al., 1995). Psychosomatic patients are limited in their descriptions of their emotions and, in particular, are poor at perceiving what provokes them (Taylor, Bagby, & Parker, 1997). As regards PD patients, our hypothesis is that they suffer from impaired metacognition, that the impairment is not uniform (Dimaggio, Semerari et al., in press; Semerari et al., 2003, in press) and that for each PD there are different types of impairment. The malfunctioning ought to be less serious than in autistics and psychotics; for example, no PD patient fails consistently to identify his/her thoughts as being his/her own. Any dysfunctions ought to also be very sensitive to trends in relationships, unlike in autistics and psychotics, where the impairment is more constant and harder to rectify. When there is a good emotional atmosphere, PD patients ought to display problematic moments in relationships (Dimaggio, Semerari et al., in press; Semerari, et al., 2003, in press). Better metacognition than in Ryle and Kerr (2002) note that borderlines have poor self-reflective skills and thus

swing between one self-state and another. Fonagy and colleagues (2002) observe how borderlines are poor at integrating multiple representations of self with others, so that they swing chaotically between extreme emotional states, and also have limited general self-reflective skills (Fonagy et al., 2002). However, an analysis of psychotherapy transcripts of borderline patients during the first year of therapy using the Metacognition Assessment Scale (Semerari et al., 2003b) showed that they are good at describing their inner states but had difficulty integrating the changeable representations that occur with relationships into coherent narratives and had some problems differentiating fantasy and reality (Semerari, Dimaggio, Nicolò, Pedone, Procacci, & Carcione, 2005).

Narcissists are out of touch with their own inner states (they are alexithymic; Krystal, 1998), in particular the emotions connected with the activation of the attachment system—fragility, need for attention and so on—and the desires not integrated into the grandiose self (Bowlby, 1982; Dimaggio, Semerari et al., 2006; Kohut, 1971; Jellema, 2000). They also find it difficult to identify any external causes for their inner states (Kernberg, 1975). They display limited empathy, are egocentric in a Piagetian sense and lack a well-developed theory of other's mind (Benjamin, 1996; Fiscalini, 1994; Westen, 1990). Similarly, although in a more serious form, paranoids do not decenter cognitively. They systematically interpret others' gestures and expressions as being ill-intentioned and always feel involved in a relationship (Nicolò & Nobile, 2006). The personalities that Westen & Shedler (2000) define as schizoid are poor at making sense of other's people behavior and have little psychological insight into their motives. These same authors consider low self-reflectivity to be typical of PDs in general.

This theoretical, observational, and empirical information suggests that PDs are characterized by malfunctionings in specific aspects of the ability to construct integrated representations of one's own mental representations (metarepresentations; Semerari et al., 2003b). These malfunctionings interfere with interpersonal relationships, a core assumption in Livesley's definition. For example, narcissists are incapable of identifying their own emotions and ascribing meaning to them, so that they do not consciously seek help when in difficulty. Others do not offer them the attention that they have not asked for but, at a pre-verbal level (spontaneous activation of attachment), expect. As a consequence, relationships become dysfunctional.

INTERPERSONAL SCHEMAS

Relationships are problematical if the cognitive structures guiding them are dysfunctional. Life in a complex society is impossible without tools to enable one to foresee how interactions will evolve, prescribe which behavior to adopt, proscribe behaviors to avoid, and provide a model of the other person and his or her intentions towards the self. Interactive procedures

and rules for correct social interaction are also needed. These requirements are met by interpersonal schemas. People enter into relationships based on structures formed by desires (motivations, goals), self-representations, representations of other and his or her intentions vis-à-vis self, and representations of the response self will make depending on other's response. Over the course of their lives, people develop a variety of such schemas to fit different circumstances. These structures are termed: internal working models (Bowlby, 1982); representations of interactions that have been generalized (Stern, 1985); interpersonal schemas (Baldwin, 1992; Safran & Muran, 2000); role-relationship models (Horowitz, 1998); reciprocal role procedures (Ryle & Kerr, 2002); object relations (Fairbairn, 1952); and dialogical relationship patterns (Dimaggio, Fiore et al., 2006).

The rules or schemas develop out of relationships with others. People look for relationships to meet ethologically determined needs such as being accepted, loved, protected, or admired, self-esteem, and so on. During development, they create and store images of self (e.g., being undeserving of love) and other (e.g., rejecting) around certain desires (being loved). Thus schemas are formed with a structure such as "If I ask others for love, given that I'm undeserving, they will reject me." If persons guided by such a schema do not ask for love they are unlikely to obtain it. Nor will their elusive attitude stimulate others to give them attention. Their idea about being unlovable thus gets confirmed. To summarize, the schemas influence both behavior (given that I shall be rejected, I am not going to display my desire to be loved) and other's responses (Millon & Davis, 1996; Mitchell, 1988; Safran & Muran, 2000). To quote Livesley (2003):

> The sequence of (1) a triggering situation evoking (2) basic schema that, in turn, evoke (3) an experiential state, (4) behavioral response, (5) reciprocating responses from others, and (6) evaluation of outcome leading to confirmation of the basic belief creates a cyclical interpersonal dynamic that is self-maintaining and difficult to disrupt" (p. 36).

Several authors hypothesize that it is possible to define PDs on the basis of a general theory of human behavior in interpersonal relationships. For Perris (1999), PDs are personality-based disorders of interpersonal behavior and he classifies PDs according to various attachment behavior subtypes. Along similar lines, interpersonal theory holds that: "even the most outrageous self-destructive behaviors can be seen as repetitions of patterns with important persons" (Benjamin & Pugh, 2001). Empirically the interpersonal model is good at defining PDs, except borderline, compulsive and passive-aggressive Pds (Pincus & Wiggins, 1990). Livesley (2001) sees this as a limitation in the use of interpersonal theory for classifying PDs along with the fact that a description of interpersonal behavior alone does not amount to a full personality psychopathology.

The fact that the circumplex model does not include all PDs is not a refutation of interpersonal theory. The approach is heuristically valid; There is no substitute for the concept of interpersonal schema when defining not

only such patients' relationships but also the processes that get activated during the therapeutic relationship (Safran & Muran, 2000) that are especially likely to have a negative impact on therapy. However, a descriptive approach is more useful than attempting to deducing which dimensions underlie every human interpersonal process from a general theory.

We need to identify which interpersonal schemas crop up during PD psychotherapy. Once the set of self-other schemas typical of each PD has been traced, then it will be possible to build a general model of the alterations in interpersonal behavior.

The authors from the Third Centre for Cognitive Psychotherapy have noted that each PD has its own set of problematical interpersonal schemas and that these can be picked out in narratives and in the therapeutic relationship. Their observations regard borderline, narcissistic, dependent, avoidant and paranoid PDs and are based on a qualitative analysis of psychotherapy transcripts (Dimaggio, Semerari et al., 2006). For example, in paranoid PD the dominant self-representation is the weak, inadequate and fragile and the other is seen as ill-intentioned and ready to exploit one's weaknesses. As a result, the behavior of paranoid individuals swings from anticipatory counter-attacks, withdrawal from relationships, and dejection due to feeling that they can no longer tackle threats (see also Millon & Davis, 1996; Stone, 1993). The fact that they have only a limited number of schemas together with the negative reactions these provoke in others leads patients to experience a limited number of self-states and miss opportunities to widen their self-knowledge. If their expectations prevent them from noticing behavior by others not foreseen in their schemas, they are unable to take advantage of new potentially adaptive experiences. For example, by being unable to understand that another is offering help and not attacking, they can not access the self-receiving-help representation.

DECISION-MAKING REASONING PROCESSES

People are continuously making choices in their personal and social domains. The time available (limited), the variables involved (many) and the problem of comparing different types of elements make it impossible to apply formal logic when calculating the costs and benefits of choices. Nevertheless, in the majority of cases these choices are essential to survival and achieving goals. For this reason, people use reasoning strategies that are automatic and rapid—heuristics (Tversky & Kahneman, 1974)—which, even if imprecise, provide them with an adequate level of expertise in their actions.

Normal reasoning can not therefore be compared to one complying with formal logic. Baron (2000) pragmatically proposes that "good thinking" is the sort by which people are able to achieve their goals. According to this theory good reasoners need to: a. formulate several alternative hypotheses; b. look for definitive answers and not limit themselves to looking for data consistent with the focal hypothesis they are trying to demonstrate; c.

make an optimum use of their time, resources and energies for stages a. and b., and d. feel fully confident in the credibility of their conclusions.

Examples of reasoning pathology include, for example, inadequate reviewing of the facts, concentrating only on the focal hypothesis and not the alternatives, and thinking too much. Heuristics are considered a sound strategy because they render timely decision-making possible when the information available is limited. Pathological reasoning is systematically of the pseudo-diagnostic type, with an evaluation limited to a focal hypothesis and the ignoring of any data refuting it (Johnson-Laird, Mancini, & Gangemi, in press). On the other hand, true "diagnostic" reasoning takes account of alternative hypotheses and looks for data refuting a focal hypothesis. Heuristics do not correspond to the cognitive errors or irrational beliefs Beck (1976) or, in general, the standard Cognitive Behavior Therapy (CBT), talks about. As regards the large majority of the results of human thought, it is impossible to establish whether they are right or wrong. The important question is whether a reasoning strategy facilitates or hampers adaptation and whether people adopt it when appropriate or use it systematically even when it would be best not to (Baron, 2000). Overestimating danger may, for example, save one's life (Gilbert, 2002), but if this leads one to always ascribe threatening intentions to others, one's relational life will be very poor and affect quality constantly negative.

People make wide use of heuristics for example, in determining their value, self-enhance (Rosenberg, 1965; Taylor & Brown, 1988). The pathology may feature formally correct reasoning; in fact depressives tend towards a realistic self-evaluation (Alloy, 1988). Certain types of heuristic and the abuse thereof are linked to the pathology.

"Better safe then sorry" strategies are a widespread form of heuristic (Gilbert, 2002; Smeets, De Jong, & Mayer, 2000). People tend to overestimate danger in the belief that it is better not to run even a limited risk than to face a possibility, however slim, of an event that is judged to be highly dangerous taking place. People tend, on the other hand, to ignore that choosing to not run a limited risk also has harmful consequences (which is in fact the case because by not running risks one can not achieve goals) (Mancini & Gangemi, 2001). Pseudo-diagnostic reasoning leads hypochondriacs to use confirmation bias: considering only data confirming a focal hypothesis (I'm seriously ill) and ignoring those disproving it (De Jong, Mayer, & Van den Hout, 1997; Salkovskis, 1989).

Depressives tend to confirmation bias for their pessimistic beliefs (Panzarella, Alloy, Abramson, & Klein, 1999). Obsessive patients focus on the hypothesis that they could cause harm to themselves or others. Normal individuals put in an experimental situation of inflated responsibility tend to use quasi-obsessive heuristics (Ladoucer, Rhéaume, Freeston, Aublet, Jean, Lachance, Langlois, & De Pokomandy-Morin, 1995) and to make choices of the "risk-adverse" type (Mancini & Gangemi, 2002). Anxiety disorders involve mainly so-called "ex-consequentia reasoning," which can be summed up by the formula: "If I feel anxious, there must be a danger"

(Arntz, Rauner, & Van den Hout, 1995). Social phobics use heuristics of the "better safe then sorry" type (Gilbert, 2002).

As well as reasoning processes, choices are also influenced by the information source that one selects. Emotions, for example, are a rapid form of decision-making reasoning (Frijda, 1986; Oatley & Johnson-Laird, 1987; Lazarus, 1966). They are so indispensable that when brain injuries hamper the ability to feel complex emotions (e.g., guilt or shame), people are unable to make choices and their social life deteriorates (Damasio, 1994).

Given that dysfunctional reasoning is well documented in Axis I disorders, it is surprizing that there are few reports on dysfunctional reasoning in the PDs. However, the little research reported has yielded interesting results. Paranoids adopt "better safe then sorry strategies" when they feel attacked by hostile human groups (Gilbert, 2002). It has been shown in experiments (John & Robins, 1994; Pauhlus, 1998) and observed clinically (Dimaggio et al., 2002) that narcissists use self-enhancement strategies to a greater degree than normal. Narcissistic self-enhancers take credit for success but externalize or discount failures (Rhodewalt & Morf, 1998). They also respond to threats to self-esteem by disengaging from tasks that were previously very important (Sedikides & Strube, 1997). In a population of college students, those with a strong narcissistic trait tended to overestimate their academic ability, make self-serving attributions about their academic performance, disengage from the academic context when they realized that their results did not correspond to their initial, high, expectations and show a tendency towards the end of their college courses to view results as less important (Robins & Beer, 2001). Narcissists do not heed their inner states and let themselves be guided solely by reasoning. They pursue life goals reinforcing their grandiose self without satisfying other desires (Dimaggio et al., 2002; Kohut, 1971; Lowen, 1983).

Similarly, avoidant, dependent and borderline patients tend to: a. expect there to be few satisfactions both now and in the future; b. ask for a lot of information; c. use mainly rules to interrupt any losses rapidly; d. enjoy any gains to a lesser extent than normal (Leahy, 2002). Paranoids, on the other hand, feature low self-efficacy, get easily discouraged and are cautious in the face of change. Summing up, even if the research on PDs is at an initial stage, we know enough to be able to hypothesize that: PD patients' reasoning uses a series of heuristics, some of them similar to those of non-patients or Axis-I patients, and others typical of PD patients or, at least, more intense in these than in other populations, e.g., high self-enhancement. PD patients probably also, unlike normal individuals, use heuristics more pervasively and inappropriately, whereas non-patients make a more limited use of them and know to change reasoning strategy when they see that the current one is not working. Probably as a result of this pervasive use of heuristics patients fail at self-regulation and tend to experience negative self-states, as occurs in paranoids, who overestimate danger and, as a result, find it impossible to live in society without terrible conflicts and a devastating sense of anger or low self-efficacy.

PATHOLOGICAL PERSONALITY ORGANIZATION

So far we have listed those individual aspects of the self that we hypothesize are problematical in PDs, but a list of the problematical elements does not amount to a full description of self pathology. The main point is that a personality consists of a cohesive organisation of elements (Allport, 1937; Cervone & Shoda, 1999; Dimaggio, Semerari et al., in press; Guidano & Liotti, 1983; Livesley, 2003; McAdams, 1997) and the idea of organization would get lost with a description based solely on interactions between separate traits (Maffei, 2002). It is not moreover an established fact that similar groupings of elements systematically give rise in turn to the same personality profiles. We shall clarify what we mean with the language from the Five Factor Model (FFM; Costa & Widiger, 1994; Widiger, 2000): will a combination of high conscientiousness and low attractiveness automatically take the form of obsessive-compulsive personality disorder? The most reasonable answer is "No;" perhaps such a person is simply scrupulous and shy. To perceive how a person works it is essential to understand what processes connect his/her reasoning style to his/her expectations about how others will respond, and how he/she is able to perceive by what affects and personal history he/she is driven in his/her actions. FFM does not furnish this type of description.

Moreover, the same personality components can give rise to different phenomena, depending on the elements with which they interact. Let us imagine a woman whose dominant life theme in her self-narratives is feeling threatened by others. If she has a well-developed theory of mind (ability to decenter), she should be able to deduce from others' facial expressions and behavior that in many cases there is no reason to be afraid. If she lacks this skill, she will probably be paranoid. This example shows how effective metacognition protects against pathology even when there is a problematical life theme. Not having these skills has a decisive role in developing a disorder. To explain pathological personality it is necessary to take account of both any damaged elements and the way these elements interact. We need to understand, for example, how a state of mind influences reasoning strategies and activates particular interpersonal schemas and how these schemas lead to behaviors that lead others to act in a particular way. Furthermore, we also need to understand how the effects of maladaptive interpersonal processes activated by the schema are modulated (if at all) by metacognitive skills. Suppose the paranoid woman mentioned earlier has to work in a group. Her dominant life theme gets expressed in thoughts such as: "You're fragile. Others are going to take advantage of you. You should be on the alert." This schema leads to a threatened state of mind. In this state her narrative continues with an inner dialogue such as: "Your colleagues have hostile intentions. Watch how they behave and be quick to note every sign of aggression however small otherwise you could end up paying for it. Decide whether to back off or counter-attack. Don't let the others know anything about you that they might be able to use to their advantage." At this point, our paranoid person

is using pseudo-diagnostic reasoning in which she considers only her focal hypothesis and disregards any conflicting evidence. Moreover, her wary and mistrusting attitude is likely to provoke irritation in others thus confirming her in her belief that she is threatened. If she had a well-developed theory of mind, she would realize that a colleague's smile signifies an offer of help rather than an attempt to deceive her but she lacks such metacognitive skills and so is unable to change her problematical state of mind.

This example shows how Paranoid PD is not the result of a particular dysfunctional element: the fear of threat thought theme is not sufficient to explain the syndrome nor is the inability to decenter and differentiate. Borderline individuals also feel threatened and narcissistic individuals do not decenter. It is the combination and interaction of elements that leads to a recognizable paranoid personality profile. Similarly, narcissists' central life theme could be the need to keep up a grandiose self-image. At the same time, they have another more fragile self-image that causes them to feel threatened when others fail to support the grandiose one. This attitude leads them to either show off their qualities or protect themselves with aggressive self-defence, substance abuse or disengagement from tasks that were previously important, in order to protect self-esteem from expected failures. Seized by their search for perfection, narcissists do not spend time on activities that are simply enjoyable or in tune with their wishes rather than their ambitions. As a result their experience remains limited. At the same time, for fear of showing their fragile side, they avoid asking for help and this prevents them from benefiting from others' support when this is needed. A narcissist's grandiose attitude and silent but continuing need for reassurance are likely to evoke in others either rivalry or the feeling that they are not receiving attention from him. This activates an interpersonal cycle in which both participants feel disappointed and hurt. The negative interaction and hurt are likely to be obstacles to the use of metacognition that could help to disrupt the cycle. When the narcissist feels hurt, he is unlikely to notice signs of weariness and annoyance in others or consider them important. When comparing narcissists and paranoids, it is clear that the two function very differently even though a number of elements are similar (both are prone to feeling attacked and are unable to decenter, that is read others' minds without thinking that their thoughts refer systematically to oneself). The differences between the two disorders lie in the interaction between dysfunctional elements.

DISCUSSION AND CONCLUSIONS

We have shown that the self is impaired in various ways in PDs. Patients possess problematical self-states, inadequate self-representations and restricted self-narratives, and poor self-reflection and self-regulatory strategies. The model of the self expounded in this article has several advantages. First, it is founded on wide range of empirical, observational, and research data. For example, ideas about heuristics and reasoning pro-

cesses and the Theory of Mind in general and metacognition in particular, are solidly supported by empirical research. This provides a solid rationale for extending these ideas to PD. Second, the model is expressed in a language easily understood by clinicians and portrays patients' mental contents and functions in a manner is close to their subjective experience. This makes it easy for patients to understand the idea of states of mind and the thoughts and emotions that form their dominant states. The same applies to interpersonal schemas and reasoning strategies. This is an advantage over other descriptive theories like the Five Factor Model.

Third, it integrates dimensional—indispensable in describing personality from an empirical point of view and in terms of relations with a normal personality (Livesley, 2001, 2003)—and categorical models of personality. For example, a malfunction in metacognition that enable one to identify one's inner states, label them as emotional, and link them to events in one's environment (alexithymia) has trait-like properties and is dimensional (Taylor et al., 1997). On the other hand, an interaction of dysfunctional elements leads to particular types of malfunctioning that are well-defined categories.

Fourth, the model embraces the overall properties of a system and tries to provide an account of the rules governing transitions between different aspects of the self. For example, we hypothesize that in narcissistic personalities wounds to self-esteem promote a transition from grandiosity to acting-out with activation of self-enhancement heuristics. If clinicians are to intervene, they need information on the rules governing transitions among self-states and on the links between the interpersonal context and state of mind. Radically dimensional theories fail to define and explain transitions between states, the rules guiding them and the triggers setting them off.

Despite these advantages, the model has several limitations. First, although there is evidence for some components, many aspects of the model remain speculative. For example, heuristics specific to the various PDs are relatively unexplored and there is only modest empirical evidence for specific states of mind associated with each PD. We hypothesize that there are no states specific to one disorder. What distinguishes one category from another and PD patients from nonpatients is the combination of states and how transitions occur between them (Dimaggio et al., 2005, Dimaggio, Fiore, Lysaker et al., 2006). For example, a diffident state is common to normal individuals, narcissists and paranoids. Our hypothesis is that normal individuals experience it when required by the context, narcissists when they feel a threat to their self-esteem and react by detaching from relationships ("He hasn't promoted me at work because he's corrupt and he doesn't deserve my company") and paranoids almost always, with their reaction being anger aimed at righting the wrongs they have suffered.

Second, testing these ideas would be difficult and time consuming. It is necessary in analysis of the psychotherapeutic process to evaluate which schemas and interpersonal cycles get activated in a therapeutic relation-

ship, which metacognitive skill profiles are typical of each PD (if this is the case), and how therapy can help patients to improve these skills. It requires single case designs that are costly and time-consuming. Moreover, it involves organizational aspects, for example, the processes bringing about transitions, that it is difficult to verify empirically. However, when it is not possible to induce laws, collect empirical data or calculate algorithms, sciences (i.e., biology) make ample use of models defining how any observed phenomena are regulated by general principles. Cosmology and the theory of evolution have had to face problems like this but this has not resulted in them dying out.

Overall, the elements listed and the links between them seem to have the right characteristics for being a good description of the self pathology to be found in Livesley's definition of PD where we started out. The model we have expounded explains how individuals fail in: a. integrating multiple representations of self and other (metacognitive dysfunctions hamper uniting states of mind and images of self with other); b. interpersonal adaptation (interpersonal schemas leading to problematical behavior and generating actions that alienate others); and c. social functioning (interpersonal schemas again and the heuristics used leading them to make negative and detrimental choices). In spite of the limitations and partly speculative nature of the approach described, we believe that it is sufficiently well-grounded to be considered a scientific hypothesis worth discussion and investigation.

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