

# Psychopathology of eating disorders

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## Summary

Eating disorders are severe psychiatric syndromes that most likely result from, and sustained by, sociocultural, psychological and biological factors. According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), Feeding and Eating Disorders encompass three main diagnoses, namely anorexia nervosa, bulimia nervosa, and binge eating disorder. However, the collection of disturbances of eating attitudes and behaviours includes several other conditions such as pica, rumination disorder, purging disorder, atypical anorexia and bulimia nervosa, subthreshold binge eating disorder and night eating syndrome.

In a trans-diagnostic perspective, all these conditions underscore key similarities across the eating disorders, including dietary restraint, binge eating, compensatory purging, body checking and weight preoccupation. There is a general agreement on considering behavioural anomalies – which are required for DSM diagnosis – as secondary epiphenomena to a more profound psychopathological core, defined by excessive concerns about body shape and weight. In particular, patients with eating disorders overvalue their body shape and weight. Furthermore, the body image disturbance has been associated with a more profound disturbance consisting in disorders of the way persons experience their own body and shape their personal identity. In other words, whereas most people evaluate and define themselves on the basis of the way they perceive their performance in various domains, patients with eating disorders judge their self-worth largely, or even exclusively, in terms of their shape and weight and their ability to control them.

## Introduction

Eating disorders (EDs) are severe psychiatric syndromes characterised by a persistent disturbance of eating or eating-related behaviours that result in the altered consumption or absorption of food and that significantly impair physical health or psychosocial functioning. According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the Feeding and Eating Disorders category encompasses pica, rumination disorder,

According with a phenomenological perspective, the core dimension of the disease of subjects with proneness to eating disorder behaviours also encompasses the perception of space, as well as the subjective experience of time. Several behaviours and cognitive distortion can be derived from a basic sense of spatial metamorphosis that is deeply associated with the disorder of corporeality. In the same way, the subjective perception of time in eating disorder patients appears to be connected with the temporal discontinuity of the representation of one’s own body, and the need of predictability of one’s own life, which is achieved/failed according to control of eating and weight. The psychopathological core, rather than behavioural abnormalities, plays a crucial role in the onset and persistence of these disorders. Indeed, it has been associated with different responses to psychological treatment in several reports, and some authors have pointed out that the threshold to define the full recovery process might be body shame, appearance schemas and thin-ideal internalisation. Therefore, these may be fruitful targets of intervention among those on a recovery trajectory. In line with this perspective, a comprehensive assessment of a person with EDs should include: the way of perceiving one’s own body and the lived corporeality, the significance of the illness and the body in the inter-subjective interactions as well as the identity definition, the space perception and the way of experiencing time associated with several EDs features (such as binge eating, weight control).

## Key words

Eating disorders • Lived corporeality • Identity • Lived-body-for-others • Spatial metamorphosis • Perceived temporality

avoidant/restrictive food intake disorder, anorexia nervosa, bulimia nervosa and binge-eating disorder. However, the constellation of the disturbances of eating attitudes and behaviours includes several other conditions such as purging disorder, atypical anorexia and bulimia nervosa, sub-threshold binge eating disorder and night eating syndrome. According to a trans-diagnostic perspective, all these conditions underscore the same distinctive psychopathology, and patients move between these diagnostic states over time (diagnostic crossover)<sup>1 2</sup>.

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Furthermore, empirical studies have demonstrated that both typical and subthreshold EDs share the same clinical features, including dietary restraint, binge eating, compensatory purging, body checking and weight preoccupation. Taken together, these observations suggest that common mechanisms are involved in the persistence of all EDs<sup>3</sup>.

In line with this position, there is general agreement on considering behavioural anomalies – which are required for DSM diagnosis – as secondary epiphenomena to a more profound psychopathological core. For example, according to the cognitive behavioural theory the over-evaluation of eating, shape and weight and their control is considered the primary psychopathological phenomenon, and most of other clinical features can be understood as stemming directly from it, including the extreme weight-control behaviours, persistent attempts to restrict food intake, self-induced vomiting, misuse of laxatives and diuretics, over-exercising, various forms of body checking and avoidance, and preoccupation with thoughts about eating, shape and weight<sup>3,4</sup>.

According to a phenomenological position, the core psychopathological features represented by shape and weight concerns are the result of a more profound disturbance of the way persons with EDs experience their own body (embodiment) and shape their personal identity, assuming that the various kinds of anomalous eating behaviour are a consequence thereof. In line with this perspective, a comprehensive assessment of a person with EDs should overcome the merely behavioural assessment required for a DSM diagnosis, and it should include the general way of perceiving one's own body and the lived corporeality. Moreover, clinicians should evaluate the consequences of this core dimension on other domains of the patient's life, such as the significance of the illness and the body in the inter-subjective interactions as well as identity definition, space perception and the way of experiencing time associated with several features of EDs (such as binge eating, weight control). Indeed, several behaviours and cognitive distortion often taken into account by the psychiatric and cognitive literature can be derived from a basic sense of spatial metamorphosis that is deeply associated with the disorder of corporeality. In the same way, the subjective perception of time in ED patients appears to be connected with the temporal discontinuity of the representation of one's own body, and the need of predictability of one's own life, which is achieved/failed according to control of eating and weight. An accurate psychopathological assessment in EDs is crucial from a clinical point of view for several reasons. At first, psychopathology allows definition of a qualitative threshold along a continuum of severity, discriminating healthy subjects from high risk persons with abnormal eating behaviours in the general population, and non-

clinical persons with abnormal eating behaviours from EDs in a clinical setting. Furthermore, the core features of EDs have been associated with different responses to psychological treatments and a different course of illness<sup>5-8</sup>. In other words, while diagnoses do not seem to represent adequate outcome predictors, psychopathological dimensions identify subpopulations of persons with EDs with different trajectories across time, and therefore different maintaining factors and pathogenic mechanisms. The present chapter is aimed at providing a comprehensive description of the main psychopathological dimensions that can be affected in subjects with proneness to EDs. Our attempt is to overcome the simplistic behavioural assessment suggested by the DSM, and some of the constructs of the cognitive literature, and to focus on the subjective perception of body, space and time, as well as on the sensation of control/loss of control which underlies several pathological eating behaviours.

## Body

Several studies have demonstrated the importance of concerns related to the body (e.g. shape, weight) in determining a different course of patients with EDs, in terms of response to treatment and long-term outcome. Patients with EDs typically overvalue their body shape and weight, and body image disturbances may be the key to distinguish between partially and fully recovered individuals and a healthier relationship with one's body may be the final hurdle in recovery<sup>9</sup>.

In particular, it has been suggested that *body image distortion* – defined as “a disturbance in the way in which one's body weight or shape is experienced”<sup>10</sup> – represents a specific trait of EDs, which allows distinguishing between affected EDs patients and normal subjects across a continuum of severity of several psychopathological domains, including the influence of body weight or shape on self-evaluation, and the tendency to control body weight. It is considered as a multidimensional pattern, which includes cognitive and affective components (concerns and feelings about the body), perception (estimation of body size) and behaviours related to the own body perception<sup>11</sup>.

In many cases, the term *body image* has been adopted in a rather unspecific manner, including different psychological and neurocognitive domains. For a more accurate psychopathological definition, it is important to distinguish between different dimensions of embodiment, such as *body schema*, *body image* and *lived body*, although no consensus concerning terminology has yet emerged<sup>12</sup>. The concept of *body image* should be clearly differentiated from *body schema*, which is “a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring”<sup>12</sup>. Ac-

According to Head<sup>13</sup>, the *body schema* is a model/representation of one's own body that constitutes a standard along which postures and body movements are judged. This representation can be considered the result of comparisons and integration at the cortical level of past sensory experiences (postural, tactile, visual, kinaesthetic and vestibular) with current sensations. This gives rise to an almost completely unconscious "plastic" reference model that makes it possible to move easily in space and to recognise the parts of one's own body in all situations. According to Schilder<sup>14</sup>, the body image can be defined as "the picture of our own body which we form in our mind, that is to say, the way in which the body appears to ourselves". Allamani and Allegranzi<sup>15</sup> refer to *body image* as "a complex psychological organization which develops through the bodily experience of an individual and affects both the schema of behaviour and a fundamental nucleus of self-image". A third concept, namely *lived body*, is taken from phenomenology and addresses the body experienced from within, my own direct experience of my body in the first-person perspective, myself as a spatiotemporal embodied agent in the world<sup>16-20</sup>. In a phenomenological perspective, the layer of cenesthetic sensations is the prerogative of the lived body as the immediate experience of one's body, and not a representation of it (as the case with "body image")<sup>21</sup>.

Since the beginning of the 20th century, phenomenology has developed a distinction between lived body (*Leib*) and physical body (*Koerper*), or between body-subject and body-object. The first is the body experienced from within, my own direct experience of my body in the first-person perspective, myself as a spatiotemporal embodied agent in the world; the second is the body thematically investigated from without, as for example by natural sciences as anatomy and physiology, a third-person perspective<sup>16-17</sup>. One's own body can be apprehended by a person in the first-person perspective as the body-I-am. This is the cenesthetic apprehension of one's own body, the primitive experience of oneself, the basic form of self-awareness, or the direct, unmediated experience of one's own "facticity", including oneself as "this" body, its form, height, weight and colour, as well as one's past and what is actually happening. First and foremost, we have an implicit acquaintance with our own body from the first-person perspective. The lived body turns into a physical, objective body whenever we become aware of it in a disturbing way. Whenever our movement is somehow impeded or disrupted, then the lived body is thrown back on itself, materialised or "corporealised". It becomes an object for me. Having been a living bodily being before, I now realise that I have a material (impeding, clumsy, vulnerable, finite, etc.) body<sup>22</sup>.

Anomalies with embodiment have already been posited as central domains of several mental disorders, includ-

ing schizophrenia<sup>19-23</sup>, manic-depressive disorders<sup>22</sup> and body dysmorphic disorder<sup>24</sup>. Abnormal attitudes toward one's own corporeality, and difficulties in the definition of one's own identity, have been proposed as the core features of these disorders. EDs are affected by disturbances of the way people experience their own body (embodiment). In subjects with a proneness to pathological eating behaviours, the body is no longer the essential experience of the being-in-the-world, but the world becomes the field to play the game to define their own identity. The body becomes the means to get in touch with their own emotions. Accordingly, these are sentences often reported by EDs patients: "Having my weight under control makes me feel in control of my emotional states"; "If my measurements remain the same over time I feel that I am myself, if not I feel I am getting lost".

From a neurobiological perspective, brain activation in response to the view of one's own body involves extensive circuitry including dorsolateral prefrontal, supplementary motor, insular, inferior parietal (representation of one's own body schema), fusiform (human face recognition process), occipito-temporal (the so called "extrastriate body area") and cingulate regions. Moreover, body image distortion has been associated with a specific activation pattern that includes the inferior parietal lobule and the dorsolateral prefrontal cortex (DLPFC)<sup>25</sup>. The DLPFC represents an intriguing neurobiological correlate for psychopathological domains, given the functions associated with this brain region. It is part of cortico-striatal loops, which contribute not only to executive functions but also to the regulation of emotional impulses mediated by limbic and paralimbic structures<sup>26</sup>, by means of enhancing the tendency of individuals to suppress aversive emotional states<sup>27</sup>. Furthermore, it may represent the biological underpinning of the link between body image and identity disturbance in EDs. Indeed, the DLPFC has long been considered a key component of a network subserving awareness of self and metacognitive evaluation of the self<sup>28-29</sup>. Therefore, in EDs specific activation of DLPFC in response to body image distortion tasks could suggest that the oversized body stimuli can be considered highly relevant for self-evaluation<sup>30</sup>.

## Identity

There is a general agreement to consider the maintenance EDs as based on a dysfunctional system for evaluating self-worth. Whereas most people evaluate themselves on the basis of their perceived performance in a variety of domains of life (e.g. the quality of their relationships, work, parenting, sporting ability, etc.), people with EDs judge themselves largely, or even exclusively, in terms of their eating habits, shape or weight and their ability to control them<sup>3</sup>.

From a cognitive point of view, the self-concept is de-

defined as a set of knowledge structures about the self that originates from the cognitive products of the person's interaction with the social world. These aspects are important for development of self-schemas that shape the individual's social interactions<sup>31-32</sup>. The literature in this field has provided two main constructs pertaining one's own identity, which have been proposed as maintaining factors of EDs: severe clinical perfectionism, and core low self-esteem<sup>33</sup>. Clinical perfectionism is a system for self-evaluation in which self-worth is judged largely on the basis of striving to achieve demanding goals and success at meeting them<sup>34</sup>. Perfectionism is well-known to be frequently observed in patients with ED<sup>34-35</sup>. There is often an interaction between the two forms of psychopathology with the patient's perfectionist standards being applied to the attempts to control eating, shape and weight, as well as other aspects of life (e.g. performance at work or sport)<sup>3</sup>. Regarding the core of low self-esteem, most of patients with ED have an unconditional and pervasive negative view of themselves that is seen as part of their permanent identity. These patients show particularly pronounced negative cognitive processing biases, coupled with over-generalisation, with the result that any perceived "failure" is interpreted as confirmation that they are failures as people thereby reaffirming their overall negative view of themselves<sup>36</sup>.

Moreover, in a psychodynamic perspective, impairments in overall identity development and the failure to establish multiple and diverse domains of self-definition have been considered the core pathoplastic mechanism of EDs<sup>37-41</sup>. In particular, Bruch<sup>37</sup> suggested that the dissatisfaction and preoccupation with body image that characterises persons with EDs reflect a maladaptive "search for selfhood and a self-respecting identity". Accordingly, the basis for the development of the sense of a core subjective self is represented for Stern<sup>42</sup> by the interaction between mother and infant in sharing affective states and experiences. Feeding represents a vital activity for the construction of the self since it serves as a framing environment and allows face-to-face contact with the caregiver via the phenomenon of *affective attunement*<sup>42</sup>, an essential step toward the development of a narrative self and a sense of identity.

Stanghellini et al.<sup>43</sup> provided a phenomenological interpretation of the core psychopathology of EDs based on a disturbance of self-identity. According to this hypothesis, in persons with EDs the disturbance of the experience of one's own body is interconnected with the process of shaping their personal identity. As stated, the cenesthetic apprehension of one's own body is the more primitive and basic form of self-awareness, and patients with EDs often report – with different extents of insight – their difficulties in perceiving their emotions and that do not "feel" themselves<sup>38-41</sup>. Indeed, *feeling oneself* is

a basic requirement to achieve an identity and a stable sense of one's self<sup>21</sup>. Therefore, for persons prone to symptomatology of EDs, the identity is no longer a real psychic structure that persists beyond the flow of time and circumstances. The experience of not feeling own body and emotions involves the whole sense of identity. This causes us to deprive ourselves of our existence as a being-for-itself and instead learn to falsely self-identify as a being-in-itself<sup>44</sup>. Therefore, there is the need to resort to one's own body weight as a viable source of definition of the self, as patients often report: "*Sometimes, the emotions I feel are extraneous to me and scare me*"; "*I see myself out of focus, I don't feel myself*".

From an empirical point of view, the relationships between abnormal eating behaviour and self-construct or identity in EDs has already been investigated<sup>45</sup>. For example, Nordbø documented that anorectic persons may explain their behaviour as a tool for achieving a new identity. Skarderud<sup>46-47</sup> showed that for some persons with ED, changing one's body is a tool to become another. They want to change, and changing one's body serves as both a concrete and a symbolic tool for such ambitions. Thus, shaping oneself is a "concretised metaphor", establishing equivalence between a psychic reality (identity) and a physical one (one's body shape). As suggested by Surgenor et al.<sup>48</sup>, looking into the different ways persons with ED construe their own self, especially in relation to their disorder and therapy, has strategic implications for the therapeutic endeavour.

Recently, based on theoretical background, a questionnaire named IDEA (IDentity and EAting disorders) assessing abnormalities in lived corporeality, and of personal identity has been validated<sup>43</sup>. The questionnaire was developed based on the following conceptual areas: feeling oneself through the gaze of the other, defining oneself through the evaluation of the other, feeling oneself through objective measures, feeling extraneous from one's own body, feeling oneself through starvation, defining one's identity through one's own body, feeling oneself through physical activity and fatigue. Theoretically, the questionnaire assumed that most pathological eating behaviours and features are a consequence of the severity of abnormal bodily experiences and identity disorders. The questionnaire was administered to a sample of women with EDs. The validation process considered four subscales, namely *feeling oneself through the gaze of the other* and *defining oneself through the evaluation of the other*, *feeling oneself through objective measures*, *feeling extraneous from one's own body* and *feeling oneself through starvation*. The authors demonstrated that the questionnaire is able to identify important psychopathological phenomena that are closely related to the specific anomalies of patients with EDs measured with commonly-adopted psychometric instruments. In par-



ticular, the subscales showed a different pattern of association with the features of EDs. *Feeling oneself through the gaze of the other and defining oneself through the evaluation of the other* was associated with overvalued thoughts regarding body shape. A measure of alienation from one's own body and emotions, and *feeling extraneous from one's own body* significantly correlated with concerns about weight and body shape. Finally, *feeling oneself through objective measures* and *feeling oneself through starvation* were associated with overvalued thoughts regarding weight and eating concerns and with dietary restriction, respectively. In line with these results and with the phenomenological perspective, some characteristic ED behaviours, such as starvation and the fixated checking of objective measures, might be interpreted as an alternative coping strategy aimed to feel oneself for those patients who are unable to feel themselves cenesthetically.

These results were confirmed for patients reporting anorexia nervosa, bulimia nervosa and binge eating disorder<sup>43</sup>. Moreover, it was also applied beyond the boundaries of the DSM diagnostic categories, and abnormal bodily experiences were observed not just for "over-threshold" ED patients. First of all, it was tested in a large population of university students who did not suffer from EDs<sup>21</sup>. IDEA appeared to be able to identify vulnerability in subjects without full-blown EDs but with abnormal eating patterns. Moreover, the questionnaire provides a numerical threshold to discriminate clinical vs. non-clinical populations. Indeed, in people who develop clinically relevant EDs, extraneity from one's own body is a phenomenon that is significantly more manifest and penetrant than in people who display over-threshold, but non full-blown abnormal eating patterns. This could represent the first step to demonstrate that IDEA is able to identify candidate experiential intermediate phenotypes that express a gradient of vulnerability from healthy to clinical persons with EDs.

Finally, the questionnaire was applied to morbidly obese patients, which is a population at high risk of developing EDs behaviours<sup>49</sup>. The vulnerability to EDs behaviours such as binge eating appeared to be associated with abnormal bodily experiences in a dimensional pattern. Moreover, abnormal bodily experiences measured by IDEA represent the psychological underpinning of the relationship between binge eating behaviours and impulsivity, which has been frequently associated with such behaviours. A mediation model clarified that not impulsivity in itself, but the presence of impulsivity in persons affected by abnormal bodily experiences, may lead to ED psychopathology and abnormal eating behaviours. Authors concluded that the disturbance in the lived corporeality may represent the core vulnerability trait that is one of the psychological characteristics underlying the

association between personality traits such as impulsivity and the development of eating disorders features.

## The other

Clinicians often report that EDs patients define themselves by the gaze of other persons: "*For me it's very important to see myself through the eyes of the others*"; "*The way I feel depends on the way I feel looked at by the others*"; "*Sometimes I focalize myself through the gaze of the others*".

As previously stated, a specific alteration of lived corporeality can be detected in patients with EDs, and represents the psychopathological dimension underpinning the commonly observed body image disturbance. More specifically, persons with proneness to the symptoms of EDs showed a predominance of one dimension of embodiment, namely *the lived-body-for-others*, which is a concept proposed by Sartre<sup>44</sup>. In addition to the body-subject and body-object dimensions of corporeality, Sartre emphasised that one can apprehend one's own body even from another point of view, as one's own body when it is looked at by another person. This further step of self-representation happens when people realise that their own body can be observed by other persons, and therefore it can be an object for the others. When persons become aware that they, or their own body, is looked at by another person, they realise that their body can be an object for that person. "With the appearance of the Other's look", writes Sartre, "I experience the revelation of my being-as-object". The upshot of this is a feeling of "having my being outside (...) [the feeling] of being an object". Thus, one's identity becomes reified by the gaze of the other, and reduced to the external appearance of one's own body. Therefore, the lived body is no longer direct, first-personal experiential evidence, but it is an entity that exists as viewed from an external perspective<sup>43</sup>. This means that the other becomes the mirror in which one can perceive oneself.

Persons with EDs experience their own body first and foremost as an object being looked at by another, rather than cenesthetically, or from a first-person perspective. Therefore, the comprehension of the profound uneasiness of lived corporeality of EDs – leading to the sense of alienation from one's own body and from one's own emotions – should be integrated with an exaggerated concern to take responsibility for the way one appears to the others, as well as the possibility to feel oneself only through the gaze of the others, through objective measures and through self-starvation<sup>21</sup>. This interpretation overcomes the general position of the *alloplastic personality* frequently observed in subjects with EDs. According to this perspective, for persons with EDs the other is no longer an interlocutor with which to engage an in-

tersubjective co-creativity relationship, but it is the one who confirms my existence, my being-in-the-world. The gaze of the other becomes the unique way through which we are aware of our own presence. It is as the mirror in which to see themselves and to feel themselves <sup>21</sup>.

## Space

Patients with EDs with a severe clinical condition often have been reported to say: *"I cannot step through the door"*. *"I take a lot of space when I'm in a room"*, *"My body does not enter into my clothes"*. These kinds of sentences are often generically attributed to *body image distortion* phenomenon. Furthermore, clinicians generally attribute to *body image distortion* most of the *checking* behaviours of those with EDs. Indeed, individuals with EDs perform repetitive, often time-consuming, and compulsive behaviours such as long hours of lifting weights, excessive mirror checking or avoidance, comparing one's appearance with that of others, seeking reassurance about the perceived weight fluctuation, skin picking, camouflaging the perceived changes of the space they feel to occupy (e.g. with hair, makeup, body position, or clothing), frequent clothes changing and frequent body measuring. Although the goal of such behaviours is to diminish the anxiety provoked by the body image concerns, these behaviours often increase and maintain anxiety.

The mentioned behaviours and cognitive distortions can be interpreted in the light of the disorder of the lived body which leads to a kind of *spatial metamorphosis*. This position might overcome the neurocognitive literature on the complex relationship between the *body schema* and the *body image*. From the cognitive perspective, it has been extensively noticed that changes in *body schema* affect spatial perception and perception of objects. Exercise, dance and other practices that affect motility and postural schema have an effect on the emotive evaluation of one's own *body image*. Furthermore, subjects who improve in neuromuscular coordination, strength and endurance by means of exercise, or experience increased coordination, balance, agility and improved posture, gain a perception of body competence and achieve a higher degree of satisfaction with their own bodies. Thus, changes in *body schema* associated with exercise alter the way that subjects emotionally relate to and perceive their bodies. On the basis of these observations, Gallagher <sup>12</sup> argued that performances of the *body schema* may place constraints on intentional consciousness, and suggested that changes in various aspects of *body schema* have an effect on the way subjects perceive their own bodies, that is, changes in *body schema* lead to changes in *body images*. The neurobiological substrate of disorder associated alterations in body schema are essentially localised in the pa-

rietal-occipital region <sup>50</sup>, which, besides EDs, have been proposed for body dysmorphic disorder and neurological disorders, including interparietal syndrome, Gertsman's syndrome, inferoparietal syndrome, phantom limb syndrome, genital retraction syndrome, panencephalitis, cerebrovascular syndromes and pharyngeal streptococcal affecting the basal ganglia. An interdependence between cerebral regions through integrated neural networks enables efficient processing of information. Disturbances in these association pathways can lead to an imbalance in the extensive cerebral loops.

However, as previously reported, it is clear that the disturbance of body image in EDs cannot simply be ascertained from a somato-sensorial alteration, or a failing of the integration of somatic sensations at different levels. Since 1893, Bonnier <sup>51</sup> rejected the idea that the meaning of one's body is simply the sum of somatic sensations arising from it. He proposed that the space is the unifying element to define the various somatic and visceral sensations. Therefore, the mental representation of one's body is firstly a spatial representation. In this model, the *body schema* is the mental representation of topography that allows us to first know the space we occupy and that allows us the orientation with respect to the external environment and the various parts of our body. For Lhermitte, <sup>52</sup> body image exists upstream as a necessary condition for every sensation, perception and even action. The representation of one's own body is for the author simultaneously a current image, subject to continuous modifications by sensory afferents and a memory image linked to past experiences.

Fisher and Cleveland <sup>53</sup> address the issue of body image primarily in terms of *bodily boundaries*, and the body helps to create a sense of individuality in each of us, especially in terms of space. Generally speaking, body image boundaries coincide with those of the physical surface of the body. In the first months of life, body boundaries are confined within it, because the life experiences in this period relate mainly to the mouth and digestive tract. With growth, they move closer to the body surface and only in adulthood is an acceptable match reached between the boundaries of body image and physical surface of the body.

According with the identity disturbance of EDs, we can expand the disorder of lived corporeality in terms of *space occupied by the body*. Therefore, persons with EDs report an extreme polarisation of the continuum represented by the sentence: *"I am the space that my body occupies"*. A psychological assessment should take into consideration the meaning for the perceived spatial metamorphosis often reported by persons with EDs, in the light of the disorder of their lived corporeality. For all of us, our body represents the boundary from the rest of the world. The body forms the dividing line with the outside,

the limit that encloses its *ipseity* distinguishing it from the external environment. A healthy person would perceive this limit, represented mainly by body surface area, as extremely impervious to the inside (towards what is most intimate inner-body) and how patent towards the outside (like a door that opens onto the world) <sup>54</sup>.

For persons with EDs, spatiality loses the anthropological feature with whom "*I'm in the skin of my body*". Being in this sense does not mean being "here" or "there" (the basic form of self-experience - sense of existing as a subject of awareness - rooted in one bodily experience), but just being "here" where I occupy a place, a space. Thus, the space become smaller, and becomes too tight to contain my body.

## Time

Merleau-Ponty <sup>17</sup> dedicates one of the most important parts of his lecture about the lived body (*leib*) to be considered as "*belonging to the world, being in the world temporality committed*". He focuses on the temporal dimension since the structure of the world is the temporality, following the approach of Husserl's consciousness of inner time. In this sense, the primary contact with the world is the so-called field of presence, the *leib* with its own temporality, in which all our actions take place.

Every human experience is configured on experience of time. Indeed, the stream of consciousness comprises an ensemble of experiences that is unified both at any given time and over time. The temporal continuity of the representation of the body is altered in patients with EDs. Time is no longer intentionality, and therefore it cannot be a way for being with the other in a simultaneity or in a succession temporality.

First of all, patients with EDs always report the feeling that the body can change continuously. Time is reduced to a mere control function, and in particular to be employed in control and/or loss of control of weight and eating - in other words to monitoring one's own body over time. For example, EDs patients have been observed to report: "*I spend most of the time before the mirror to control my body*", or "*the perception of time depends on body control. My body is under control all the times. I fail, at times, miserably and at times I am successful, but I would like to be successful all the time*", "*One morning I feel my thighs fit perfectly in my pants, another morning instead they have become huge*".

Clinicians should always take into consideration the situational and temporal variations of body image experiences within individuals with EDs. Specific situations or events activate patients' thoughts and emotions, while at other times these body image experiences are either absent or much more benign. Cash and Pruzinsky <sup>55</sup> highlighted that *body image* must be considered as a fluid

and dynamic person-situation interaction (or transaction), and it is of note that this fluid versus static issue has long permeated much of psychology, especially the domain of personality theory. In contrast to centralist (intrapersonal) and peripheralist (situational) perspectives, an interactionist view maintains that we must consider both the person and the situation if we are to understand the complexities of human behaviour. Understanding the dynamic interplay of *body image* and contextual events is crucial for the appreciation of body image fluidity in everyday life.

For example, there can be activating contexts such as a public party. Persons' beliefs entail self-evaluative social comparisons in which they look extremely fat, and they infer that others at the party notice how fat they are. Emotional consequences include feelings of socially based self-conscious anxiety and shame. The behavioural consequences include attempts to conceal their "offending" body shape by covering it or with restriction of social interactions. Diaries often used as a self-monitoring strategy of treatment can describe activators of body image dysphoria, and capture such prototypical and troublesome body image states. For the therapist and client alike, this is clinically useful in the process of beginning to understand the essentially scripted nature of the client's experiences, which are often replete with common themes (e.g. contextual similarities, underlying cognitive distortions and schemas, specific emotions and coping strategies) <sup>55</sup>. According to a qualitative analyses of the reports of patients, time appears to be subjectively perceived in a different way by persons with EDs. For example, considering some patients with bulimia nervosa, binge eating episode occur in a very short period of time as a breakdown in a context of continuous control of eating habits. The purging behaviour occurs as a way to regain the control. Binge eating episode patients report either binge eating occurring in a short period of time either binge eating days, during which they spend all the time eating sweet things or *craving* or *nibbling*. For both bulimia nervosa and binge eating episode patients, it is clear that the subjective perception of time during binge eating episodes is completely different compared with a normal time course. Patients often do not remember what they were doing, how long the episode lasted or even what they have eaten.

An approach that overcomes merely behavioural assessment is necessary in EDs as demonstrated by the difficulties of researchers in their attempt to operationalise the definition of *binge eating* with objective variables. The consumption of a large amount of food (an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances) or the temporal boundary to the episode (eating, in a discrete period of time; e.g. within any 2-h period),



have been deeply challenged from an empirical point of view<sup>56</sup>. Indeed, a binge eating episode is an experience that is both variable and subjective, and the proposed 'objective' criteria do not appear to be adequate to describe its complex phenomenology. Neither do they seem to have a real clinical utility as, for example, *subjective binge eating* (involving the same sense of loss of control but the consumption of a small to moderate amount of food) has been found to better predict the outcome of psychological treatments compared with objective episodes<sup>2 57 58</sup>. The persistence of subjective loss of control over eating – an effect that is probably underestimated by clinicians – may contribute to relapse, by decreasing self-efficacy and confidence in maintaining the changes achieved during treatment.

This kind of observations highlights the importance of using the *subjectiveness* of the experience to understand the phenomenology of pathological eating behaviours. A person's definition of a "large amount" of food as well as a "discrete period of time" is highly subjective and can be influenced by personal beliefs and rules, which can vary from day to day. From a qualitative point of view, the main dimension of a binge, for all clinical ED conditions (including binge/purging anorexia, bulimia nervosa and binge eating disorder), is based on a subjective experience of lack of control. This means that the episode exits on the basis of what a person thinks is *being under control*.

The subjective perception of time in persons with EDs appears to be interconnected with the construct of *control*. Time is perceived in different ways on the basis of the interchange of control/loss of control phases. From a cognitive perspective, *control* is mostly related to anxiety, and it has been conceptualised as anxious perception of low control over external threats and emotional reactions. Feeling control over a threat involves predicting the threat and also being able to respond to the threat in a way that reduces it and enhances the sense of personal competence and self-efficacy<sup>59 61</sup>. The dimension of control in EDs has also been sustained in the psychodynamic literature, especially for anorexia nervosa patients<sup>62 63</sup>, who maintain a sense of control by continuous monitoring of eating and body weight and shape, and dietary restrictions. However, it has been observed that the perception of control does not pertain only to the domains of eating, body weight and image, and control is an ample and complex construct, linked not only to eating and body aspect but also to life in general<sup>64-67</sup>. Williams et al.<sup>68</sup> showed that individuals with any ED perceive a low degree of internal control and high external control exerted by family and society. Sassaroli et al.<sup>61</sup> showed that the construct of perceived low control is not involved only with dietary restriction, but that it is also a core belief of the whole domain of ED. Accordingly, individuals with ED feel a pervasive perception of lack of

control most of the time, which results as a continuous and strength resistance against an imminent threat. Thus, they commonly restrict their experience and focus on eating and body size to regain a feeling of control and achieve some degree of predictability in their life<sup>61 68</sup>.

## Conclusion

The phenomenological point of view on EDs considers the pathological eating behaviours as epiphenomena of a more profound disorder of lived corporeality and self-identity. In the same way, some of the cognitive distortions often associated with these disorders can also be derived from the main psychopathological dimensions, involving a sense of metamorphosis of space and a sense of time interconnected with the need of predictability. In line with this position, it has been suggested that the term "eating disorders" is referred to a merely behavioural definition. However, it is important to note that the behavioural characteristics defining diagnoses change across time, and provide scarce information on prognosis. Moreover, some cognitive constructs – frequently reported as maintaining factors of pathological eating behaviours – have been found to show a non-specific association with the pathology of EDs. Therefore, the search for core psychological dimensions could provide more specific and stable phenotypes, which would result more suitable both for clinicians and researchers.

## Conflict of interest

None.

## References

- 1 Tozzi F, Thornton LM, Klump KL, et al. *Symptom fluctuation in eating disorders: correlates of diagnostic crossover*. Am J Psychiatry 2005;162:732-40.
- 2 Castellini G, Lo Sauro C, Mannucci E, et al. *Diagnostic crossover and outcome predictors in eating disorders according to DSM-IV and DSM-V proposed criteria: a 6-year follow-up study*. Psychosom Med 2011;73:270-9.
- 3 Fairburn CG, Cooper Z, Shafran R. *Cognitive behaviour therapy for eating disorders: a "transdiagnostic" theory and treatment*. Behav Res Ther 2003;41:509-28.
- 4 Fairburn CG, Harrison PJ. *Eating disorders*. Lancet 2003;361:407-16.
- 5 Carter JC, Blackmore E, Sutandar-Pinnock K, et al. *Relapse in anorexia nervosa: a survival analysis*. Psychol Med 2004;34:671-9.
- 6 Loeb KL, Walsh BT, Lock J, et al. *Open trial of family-based treatment for full and partial anorexia nervosa in adolescence: evidence of successful dissemination*. J Am Acad Child Adolesc Psychiatry 2007;46:792-800.
- 7 Bardone-Cone AM, Joiner TE Jr, Crosby RD, et al. *Exam-*



- ining a psychosocial interactive model of binge eating and vomiting in women with bulimia nervosa and subthreshold bulimia nervosa. *Behav Res Ther* 2008;46:887-94.
- 8 Ricca V, Castellini G, Lo Sauro C, et al. *Cognitive-behavioral therapy for threshold and subthreshold anorexia nervosa: a three-year follow-up study*. *Psychother Psychosom* 2010;79:238-48.
  - 9 Bardone-Cone AM, Harney MB, Maldonado CR, et al. *Defining recovery from an eating disorder: Conceptualization, validation, and examination of psychosocial functioning and psychiatric comorbidity*. *Behav Res Ther* 2010;48:194-202.
  - 10 American Psychiatric Association. *Diagnostic and statistical manual for mental disorders*. 4<sup>th</sup> ed. Washington, DC: American Psychiatric Press 1994.
  - 11 Thompson JK, Heinberg LJ, Altabe M, et al. *Exacting beauty*. Washington, DC: American Psychological Association 1999.
  - 12 Gallagher S. *How the body shapes the mind*. Oxford: Oxford University Press 2006.
  - 13 Head, H. *Aphasia and kindred disorders of speech*. London: Cambridge University Press 1926.
  - 14 Schilder P. *The image and appearance of the human body: studies in the constructive energies of the psyche*. New York: International Universities Press 1950.
  - 15 Allamani A, Allegranzi P. *Immagine corporea: dimensioni e misura. Una ricerca clinica*. *Archivio di Psicologia Neurologia Psichiatria* 1990;2:171-95.
  - 16 Husserl E. *Ideen zu einer reinen phänomenologie und phänomenologische philosophie. ii. phänomenologische untersuchungen zur konstitution*. Den Haag: Nijhoff 1912-1915.
  - 17 Merleau-Ponty M. *Phenomenology of perception*. 1940. Engl. Transl. by Colin Smith. New York: Humanities Press 1996.
  - 18 Dillon MC. *Merleau-Ponty's ontology*. Evanston: Northwestern University Press 1997.
  - 19 Stanghellini G. *Embodiment and schizophrenia*. *World Psychiatry* 2009;8:1-4.
  - 20 Stanghellini G, Rosfort R. *Emotions and personhood. Exploring fragility. Making sense of vulnerability*. Oxford: Oxford University Press 2013.
  - 21 Stanghellini G, Trisolini F, Castellini G, et al. *Is feeling extraneous from one's own body a core vulnerability feature in eating disorders?* *Psychopathology* 2014 Oct 22 [Epub ahead of print].
  - 22 Fuchs T. *The phenomenology of shame, guilt and the body in body dysmorphic disorder and depression*. *J Phenomenol Psychol* 2002;33:223-43.
  - 23 Stanghellini G. *Psicopatologia del senso comune*, Milano: Raffaello Cortina Editore 2008.
  - 24 Morris KJ. *The phenomenology of body dysmorphic disorder: a Sartrean analysis*. In: Fulford KWM, Morris KJ, Sadler JZ, et al. editors. *Nature and narrative. An introduction to the new philosophy of psychiatry*. Oxford University Press 2003, pp. 171-85.
  - 25 Pietrini F, Castellini G, Ricca V, et al. *Functional neuroimaging in anorexia nervosa: a clinical approach*. *Eur Psychiatry* 2011;26:176-82.
  - 26 Lévesque J, Eugène F, Joannette Y, et al. *Neural Circuitry underlying voluntary suppression of sadness*. *Biol Psychiatry* 2003;53:502-10.
  - 27 Miller EK, Cohen JD. *An integrative theory of prefrontal cortex function*. *Annu Rev Neurosci* 2001;24:167-202.
  - 28 Johnson S, Baxter L, Wilder L, et al. *Neural correlates of self reflection*. *Brain* 2002;125:1808-14.
  - 29 Schmitz TW, Kawahara-Baccus TN, Johnson SC. *Metacognitive evaluation, self-relevance, and the right prefrontal cortex*. *Neuroimage* 2004;22:941-7.
  - 30 Castellini G, Polito C, Bolognesi E, et al. *Looking at my body. Similarities and differences between anorexia nervosa patients and controls in body image visual processing*. *Eur Psychiatry* 2013;28:427-35.
  - 31 Markus H. *Self-schemata and processing information about the self*. *J Pers Soc Psychol* 1977;35:63-78.
  - 32 Markus H, Smith J, Moreland R. *Role of the self-concept in the perception of others*. *J Pers Soc Psychol* 1985;49:1494-1512.
  - 33 Fairburn CG. *Cognitive behavior therapy and eating disorders*. *Psychiatr Clin North Am* 2010; 33:611-27.
  - 34 Shafran R, Cooper Z, Fairburn CG. *Clinical perfectionism: a cognitive-behavioural analysis*. *Behav Res Ther* 2002;40:773-91.
  - 35 Sassaroli S, Apparigliato M, Bertelli S, et al. *Perfectionism as a mediator between perceived criticism and eating disorders*. *Eat Weight Disord* 2011;16:37-44.
  - 36 Fairburn CG, Peveler RC, Jones R, et al. *Predictors of twelve-month outcome in bulimia nervosa and the influence of attitudes to shape and weight*. *J Consult Clin Psychol* 1993;61:696-8.
  - 37 Bruch H. *Anorexia nervosa: therapy and theory*. *Am J Psychiatry* 1982;139:1531-8.
  - 38 Goodsitt A. *Eating disorders: a self-psychological perspective*. In: Garner D, Garfinkel P, editors. *Handbook of treatment for eating disorders*. New York: Guilford Press 1997, pp. 205-28.
  - 39 Sands S. *Bulimia, dissociation, and empathy: a self-psychological view*; In: Johnson C, editor. *Psychodynamic treatment of anorexia nervosa and bulimia nervosa*. New York: Guilford Press 1991, pp. 34-50.
  - 40 Malson H. *Women under erasure: anorexia bodies in post-modern context*. *J Community Appl Soc* 1999;9:137-53.
  - 41 Piran N. *Reinhabiting the body*. *Fem Psychol* 2001;11:172-6.
  - 42 Stern D. *The interpersonal world of the infant: a view from psychoanalysis and developmental psychology*. New York: Basic Books 1985.
  - 43 Stanghellini G, Castellini G, Brogna P, et al. *Identity and eating disorders (IDEA): a questionnaire evaluating identity and embodiment in eating disorder patients*. *Psychopathology* 2012;45:147-58.
  - 44 Sartre JP. *L'être et le néant*, 1943. English translation: Be-

- ing and Nothingness. New York: Washington Square Press 1992.
- 45 Nordbø RH, Espeset EM, Gulliksen KS, et al. *The meaning of selfstarvation: qualitative study of patients' perception of anorexia nervosa*. *Int J Eat Disord* 2006;39:556-64.
- 46 Skarderud F. *Eating one's words, Part I. "Concretised metaphors" and reflective function in anorexia nervosa – an interview study*. *Eur Eat Disord Rev* 2007;15:163-74.
- 47 Skarderud F. *Eating one's words, Part II. The embodied mind and reflective function in anorexia nervosa - theory*. *Eur Eat Disord Rev* 2007;15:243-52.
- 48 Surgenor LJ, Plumridge EW, Horn J. *"Knowing One's Self" anorexic: implications for therapeutic practice*. *Int J Eat Disord* 2003;33:22-32.
- 49 Castellini G, Stanghellini G, Godini L, et al. *Abnormal bodily experiences mediate the relationship between impulsivity and binge eating in overweight subjects seeking for bariatric surgery*. *Psychother Psychosom* 2014 (in press).
- 50 Yaryura-Tobias J, Neziroglu F, Torres-Gallegos M. *Neuro-anatomical correlates and somatosensorial disturbances in body dysmorphic disorder*. *CNS Spectrums* 2002;7:432-4.
- 51 Bonnier P. *Vertige*. Paris: Masson 1893.
- 52 Lhermitte J. *De l'image corporelle*. *Rev Neurol* 1942;74:20-38.
- 53 Fisher S, Cleveland SE. *The Body image boundary construct: a study of the self-steering behavior syndrome*. *J Proj Tech Pers Assess* 1969;33:318-21.
- 54 Marcel G. *Being and Having*. New York: Harper & Row 1965.
- 55 Cash TF, Pruzinsky T. *Body images: Development, deviance, and change*. New York: Guilford Press 1990.
- 56 Wolfe BE, Baker CW, Smith AT, et al. *Validity and utility of the current definition of binge eating*. *Int J Eat Disord* 2009;42:674-86.
- 57 Mond JM, Latner JD, Hay PH, et al. *Objective and subjective bulimic episodes in the classification of bulimic-type eating disorders: another nail in the coffin of a problematic distinction*. *Behav Res Ther* 2010;48:661-9.
- 58 Ricca V, Castellini G, Mannucci E, et al. *Comparison of individual and group cognitive behavioral therapy for binge eating disorder. A randomized, three-year follow-up study*. *Appetite* 2010;55:656-65.
- 59 Barlow DH. *Anxiety and its disorders: the nature and treatment of anxiety and panic*. New York: Guilford Press 2002.
- 60 Hoyer J, Becker ES, Roth WT. *Characteristics of worry in GAD patients, social phobics, and controls*. *Depress Anxiety* 2001;13:89-96.
- 61 Sassaroli S, Gallucci M, Ruggiero GM. *Low perception of control as a cognitive factor of eating disorders. Its independent effects on measures of eating disorders and its interactive effects with perfectionism and self-esteem*. *J Behav Ther Exp Psychiatry* 2008;39:467-88.
- 62 Bruch H. *Eating disorders: Obesity, anorexia nervosa and the person within*. New York: Basic Books 1973.
- 63 Button E. *Eating disorders: a quest for control?* In: Button E, editor. *Personal construct theory and mental health*. London, Sidney: Croom Helm 1985, pp. 153-68.
- 64 Orbach S. *Hunger strike: the anorectic's struggle as a metaphor for our age*. London: Faber & Faber 1986.
- 65 Rotter J. *Internal versus external control of reinforcement*. *Am Psychol* 1990;45:489-93.
- 66 Shapiro DH, Astin JA. *Control therapy: an integrated approach to psychotherapy, health, and healing*. New York: John Wiley 1998.
- 67 Surgenor L J, Horn J, Plumridge EW, et al. *Anorexia nervosa and psychological control: a reexamination of selected theoretical accounts*. *Eur Eat Disord Rev* 2002;10:85-101.
- 68 Williams GJ, Chamove AS, Millar HR. *Eating disorders, perceived control, assertiveness and hostility*. *Br J Clin Psychol* 1990;29:327-35.