

## Comunicazione breve

# Understanding anxiety disorders: the psychology and the psychopathology of defence mechanisms against threats

## *Comprendere i disturbi d'ansia: dalla psicologia alla psicopatologia dei meccanismi di difesa dai pericoli*

GIAMPAOLO PERNA

E-mail: pernagp@tin.it

Department of Clinical Neuroscience, Villa San Benedetto Menni, Hermanas Hospitalarias, Albese con Cassano, Como, Italy  
Department of Psychiatry and Behavioral Sciences, Leonard M. Miller School of Medicine, University of Miami, USA  
Department of Psychiatry and Neuropsychology, Maastricht University, Netherlands

**SUMMARY.** The mental defence system plays a central role in ensuring individual and species survival from dangers. The cost of its activation is a decrease in freedom in favour of an increase in safety. Anxiety, fear and panic are the organizing principles of this system: anxiety arising in response to the anticipation of a threat, fear arising in response to external environmental threats and panic arising in response to internal somatic homeostatic threats. Beyond the correct identification of the above-mentioned organizing principles, making correct therapeutic choices is linked to the ability to discriminate among physiological, pathological and pathophysiological anxiety phenomena. The intensity of the defence reaction is inadequate in determining that its pathological nature is related to the subjective evaluation of a disproportional reaction between individual resources and the potential threat. Very often, the anxious defensive reaction, which to an external observer seems disproportional, is coherent and adequate relative to the personal experience of the patient, and thus, it is not pathological.

**KEY WORDS:** anxiety, panic, fear, psychopathology, anxiety disorders.

**RIASSUNTO.** Il sistema mentale di difesa dai pericoli svolge un ruolo fondamentale per garantire la sopravvivenza dell'individuo e della specie. Il costo della sua attivazione è la limitazione delle libertà dell'individuo a favore della sicurezza. Ansia, paura e panico sono i principi organizzatori di questo sistema: l'ansia come anticipazione dei pericoli, la paura come risposta a un pericolo ambientale esterno, il panico come risposta a un pericolo del sistema omeostatico-somatico. Oltre alla corretta individuazione dei suddetti principi organizzatori, la possibilità di effettuare scelte terapeutiche corrette è legata alla capacità di discriminare tra fenomeni ansiosi fisiologici, patologici e fisiopatologici. Non è la forza della reazione ansiosa a determinarne la sua natura patologica ma piuttosto la soggettiva consapevolezza di una sproporzione tra il vissuto ansioso e il pericolo che l'ha indotta. Molto spesso la reazione difensiva ansiosa che all'osservatore esterno appare come sproporzionata è assolutamente proporzionata al vissuto del paziente e quindi non patologica.

**PAROLE CHIAVE:** ansia, panico, paura, psicopatologia, disturbi d'ansia.

## INTRODUZIONE

The human organism is a highly complex system with respect to its somatic and mental components that have been phylogenetically built so that the organism can defend itself and ensure its species survival. To attain these goals, each somatic and mental mechanism has developed extraordinary adaptive abilities that allow the human organism to flexibly modulate its functions in order to neutralize potentially dan-

gerous stimuli (1,2). Each threat induces a complex psycho-physical and behavioural reaction with the aim of re-organizing the organism to neutralize the effect of the stimuli. In this sense, the presence of a psychopathological phenomenon induces the activation of somatic and mental mechanisms that are designed to result in the best adaptive response.

The mental defence system that responds to dangers is a modular system that is composed of three basic organizing principles that have been evolved and refined

over millions of years of evolution. These principles are anxiety, fear and panic, and they are crucial for human survival in terms of both the psychophysical reaction induced and their communicative value.

Anxiety is not an out-and-out emotion, but it is an expression of the mental and somatic activation of anticipatory defence mechanisms that aims to cope with a situation, object or person interpreted as a danger to our physical, mental or relational safety. Anxiety is a phenomenon that involves limbic-cortical structures that include, in particular, the orbitofrontal cortex, amygdala and insula.

Fear is a primary emotion that is characterized by typical immobilization and the fight or flight response when the subject faces a potentially dangerous stimulus (3); fear does not represent the anticipation of a dangerous stimulus. Fear involves the amygdala and sensorial thalamus with a weak involvement of the cerebral cortex.

Finally, panic is a primal emotion that is characterized by a very acute psycho-physical response to an internal threat to the subject's survival (e.g. acute myocardial infarction) that puts physiological homeostasis in danger. Panic mainly involves brainstem encephalic structures (4).

Anxiety disorders, which affect hundreds of millions of people across the world, are an expression of the pathological activation of the above-described defence system. When an anxious psycho-pathological phenomenon appears (e.g. unexpected panic attack) as an expression of the abnormal function of one of the three mental defences, the defence system itself reacts by activating other protective modules (e.g. anticipatory anxiety or avoidance of the situation/object invoking the perceived fear) that promote the human organism's ability to overcome or adapt to the anxious psycho-pathological phenomenon.

When an individual is affected by an anxious syndrome, it is important to understand the nature of all anxious phenomena that compose the syndrome. Thus, it is essential to clearly understand when the anxious phenomena are pathological and when they are an expression of a normal psycho-physiological adaptive response to a pathology in order to allow a correct diagnostic process and to set effective therapeutic and rehabilitative programs.

The described organizing principles of the defence system that respond to danger could affect the subject's life and experience in three different forms:

1. a physiological form when there is coherence between the subject's reaction and the danger he is facing. Both the subject who experiences the anxiety and

the external observer agree that the reaction is normal and therefore coherent with the danger;

2. a pathological form, which is characterized by disproportion between the reaction and the danger. In this case, both the subject and the external observer agree that the reaction is excessive and therefore pathological in nature relative to the danger that the subject must face;

3. an abnormal form, which we call as pathophysiological phenomenon, where there is incoherence between the judgment of the subject who experiences the phenomenon and the external observer.

In form 1, the reaction is considered normal with respect to the subject's subjective danger experience of the situation he is facing, while in form 2, the reaction is considered excessive with respect to the real danger.

### PHENOMENOLOGY OF THE DEFENSIVE PSYCHOPHYSICAL SYSTEM TO DANGER

Becoming anxious when we face discharge, responding with fear to an aggression and being panic-stricken during an asthma attack are normal emotional phenomena that help us to better cope with a dangerous situation. Experiencing a panic attack without organic pathological conditions that are related to life risk, being anxious every time our daughter gets back 5 minutes later than the stated time or running away terrified from a pool, are clear defensive pathological phenomena (Table 1).

While the concepts seem clear when we talk about physiological or psycho-pathological anxious phenomena, they become confusing when we refer to abnormal phenomena in terms of pathophysiological.

Are situations, such as being anxious in front of a slice of bread when we suffer from anorexia nervosa

	<b>Danger anticipation</b>	<b>Response to an external danger</b>	<b>Response to an internal danger</b>
<b>Physiological phenomenon</b>	Alert	Fear	Panic
<b>Pathophysiological phenomenon</b>	Abnormal anxiety	Abnormal fear	Abnormal panic
<b>Psycho-pathological phenomenon</b>	Pathological anxiety	Phobia	Panic attack
<b>Psychiatric disease</b>	Generalized anxiety disorder	Phobic disorders	Panic disorder

*Understanding anxiety disorders: the psychology and the psychopathology of defence mechanisms against threats*

because we have a distorted image of our body, responding with acute fear in a crowded place because of past experiences of panic attacks or having a panic attack when an extra heart beat occurs because we think that our heart is sick, pathological or normal phenomena?

Defence mechanisms are activated when there is a subjective evaluation of disproportion between individual resources and the potential threat that must be faced. Walking at night along a street in the Bronx *per se* does not induce a defensive reaction. If we are young women who have always lived in Manhattan, we would feel that we were in extreme danger; if we are men who are used to a daily walk through those streets because we are part of the community of that area, we would feel safe. Individual subjective judgement and not the objective/social one is the essential ingredient in sparking our defence mechanisms. In this case, abnormal defence reactions should not be considered pathological but an appropriate individual defensive reaction to a danger as interpreted by the subject. Agoraphobia would not be a phobia but instead an abnormal fear that is plausible and coherent for those who had recurrent experiences of panic attacks (5), nesting syndrome would be a very normal fear for those who suffer from contamination obsessions, and anticipatory anxiety would be plausible in front of a dish of pasta for those who suffer from anorexia.

Avoidance of confounding pathological anxious reactions with abnormal ones is a central issue in building an effective clinical intervention. Recognizing the normality and plausibility of abnormal anxious reactions allows us to focus on clinical interventions designed to resolve subjective motivations that are not visible to external observation and that have sparked these intense defence mechanisms. Only solving the psycho-pathological element that sustains the defensive reaction would permit the subject to slow down

the defences and thus overcome the anxieties and fears that are overwhelming his mind and conditioning his behaviour. If indeed the motivation of such abnormal reactions cannot be removed, it is very important to be aware of the physiological nature of this reaction in order to correctly evaluate if it would be appropriate to make a symptomatic intervention, for example with benzodiazepines, in order to reduce the individual's suffering by weakening his psychological defences poor with the risk to endanger his safety.

When we talk about defence mechanisms against dangers, we talk about one of the most important functions of individual and species survival. The price of the activation of these mechanisms is the reduction of individual freedom, which is one of the fundamental human rights. Depriving a person of adequate defence mechanisms and sacrificing his freedom as a consequence of the persistence of anxious pathologies are both situations that impair individual potential and quality of life. Hence, it is of absolute importance that we clearly understand how the mental defence system, which responds to dangers, functions in its physiological and pathological aspects.

## REFERENCES

1. Perkins AM, Kemp SE, Corr PJ. Fear and anxiety as separable emotions: an investigation of the revised reinforcement sensitivity theory of personality. *Emotion* 2007; 7: 252-61.
2. Perkins AM, Cooper A, Abdelall M, Smillie LD, Corr PJ. Personality and defensive reactions: fear, trait anxiety, and threat magnification. *J Pers* 2010; 78: 1071-90.
3. Cannon WB. The emergency function of the adrenal medulla in pain and the major emotions. *Am J Physiol* 1914; 33: 356-72.
4. Perna G, Caldirola D, Bellodi L. Panic disorder: from respiration to the homeostatic brain. *Acta Neuropsychiatr* 2004; 16: 57-67.
5. Klein DF. Anxiety reconceptualized. *Compr Psychiatry* 1980; 21: 411-27.