

Anxiety and psychosomatic symptoms in palliative care: from neuro-psychobiological response to stress, to symptoms' management with clinical hypnosis and meditative states

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Abstract: Psychosomatic disorder is a condition in which psychological stresses adversely affect physiological (somatic) functioning to the point of distress. It is a condition of dysfunction or structural damage in physical organs through inappropriate activation of the involuntary nervous system and the biochemical response. In this framework, this review will consider anxiety disorders, from the perspective of the psychobiological mechanisms of vulnerability to extreme stress in severe chronic illnesses. Psychosomatic medicine is a field of behavioral medicine and a part of the practice of consultation-liaison psychiatry. Psychosomatic medicine in palliative care, integrates interdisciplinary evaluation and management involving diverse clinical specialties including psychiatry, psychology, neurology, internal medicine, allergy, dermatology, psychoneuroimmunology, psychosocial oncology and spiritual care. Clinical conditions where psychological processes act as a major factor affecting medical outcomes are areas where psychosomatic medicine has competence. Thus, the psychosomatic symptom develops as a physiological connected of an emotional state. In a state of rage or fear, for example, the stressed person's blood pressure is likely to be elevated and his pulse and respiratory rate to be increased. When the fear passes, the heightened physiologic processes usually subside. If the person has a persistent fear (chronic anxiety), however, which he is unable to express overtly, the emotional state remains unchanged, though unexpressed in the overt behavior, and the physiological symptoms associated with the anxiety state persist. This paper wants highlight how clinical hypnosis and meditative states can be important psychosocial and spiritual care, for the symptom management on neuro-psychobiological response to stress.

Keywords: Psychosomatic symptoms; stress; anxiety; psychosocial oncology; clinical hypnosis; meditative states; spiritual care

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Anxiety and psychosomatic disorders in severe chronic illnesses and in palliative care: taxonomy

Psychosomatic disorder is a state in which psychological distress adversely affects physiological (somatic) functioning. It is a condition of dysfunction or structural damage in bodily organs through inappropriate activation of the involuntary nervous system and the biochemical response (1,2).

In this background, this paper will study anxiety disorders from the viewpoint of the psychobiological mechanisms of exposure to stress in severe chronic illnesses and in palliative care.

Psychosomatic medicine is at the same time, a field of behavioral medicine and a part of the practice of consultation-liaison psychiatry. Psychosomatic medicine in palliative care, integrates interdisciplinary studies and assessment connecting diverse clinical areas including psychosocial oncology, psychiatry, psychology, neurology, internal medicine, surgery, allergy, dermatology and psychoneuroimmunology.

Clinical illnesses where mental processes act as a main cause affecting medical outcomes are areas where psychosomatic medicine has competence (1,2).

Consequently, psychosomatic symptoms develop as physiological associated of emotional situations. In a condition of fear, for example, the stressed patient's blood pressure is possible to be high and his pulse and respiratory rate to be increased. When the fear decreases, this sensitive physiologic process usually reduces. If the person has a persistent fear (chronic anxiety), however, which he/she is not capable to express consciously, the emotional state remains affected and the physiological symptoms associated with the anxiety state continue. Generally, after a psychological intervention, a person becomes aware of the physiological dysfunction (2,3).

Clinical neurobiological researches studying to these anxiety disorders are focused toward recognizing dysfunctional neural circuits and neurochemical schemes, vulnerability genes, and psychopharmacology. Very often, they emphasize studies on physical signs and symptoms (1-3).

Some physical symptoms in severe chronic diseases are believed to have a psychological component related to stress and anxiety of daily life. This has been proposed the relationship of muscular pain, tension type headache or high blood pressure, may be related to chronic anxieties in everyday life (2).

Nevertheless, inside a psychosomatic background,

psychological and emotional states are seen as capable of considerably influencing the development of any physical illness (2). Psychiatry usually differentiates psychosomatic disorders, disorders in which psychological factors play an important role in the development, manifestation, or resolution of a physical disease, and somatoform disorders [somatic symptom disorder in diagnostic and statistical manual of mental disorders (DSM-5)], syndromes in which psychological factors are the sole cause of a physical illness.

It is problematic in palliative care, to understand whether a disease has a psychosomatic or somatoform component. However, a psychosomatic factor is often contingent when there are some characteristics of the patient's disease that are not related to biological or clinical factors, or some cases where there is no biological explanation for the psychological symptoms. For instance, *Helicobacter pylori* causes 80% of peptic ulcers. However, most people living with *Helicobacter pylori* do not develop ulcers, and 20% of patients with ulcers have no *H. Pylori* infection (4). Therefore, in these cases, psychological factors could still play some role (3). In the same way, in irritable bowel disease, there are physical and psychological symptoms, so anxiety and emotions might have an important part (4).

Psychosomatic symptoms and clinical illnesses are combined in the most part of the chronic physical diseases and can determine their beginning, presentation, maintenance, susceptibility to treatment, and the progress of the disease (5,6).

Moreover, the physical symptoms of severe diseases, such as chronic illnesses and cancer, can theoretically be influenced by a person's thoughts, feelings, emotions and a state of mental suffering and physical distress.

Studying the relationship between body and mind is the concern of the applied study of behavioral medicine. In modern medicine, psychosomatic aspects of diseases are often recognized to stress and anxiety (7), making their cure central aspects in the development, treatment, and prevention of psychosomatic illness.

In the field of psychosomatic medicine, the phrase "psychosomatic illness" is used more narrowly than it is within the general population. However, in current psychosomatic medicine, the term is usually limited to those diseases that do have a strong physical feature, but where it is believed that psychological and mental factors also have a role (8).

For this reason in the study of behavioral medicine, there are large areas of overlap in the scientific researches (9-17).

In palliative care, we consider as severe psychological

disorders: anxiety disorders, including panic disorder, generalized anxiety disorder, social anxiety disorder, psychosomatic symptoms and posttraumatic stress disorder (15-17).

These disorders are currently diagnosed using standardized diagnostic criteria [DSM-5 (18) and international classification of diseases (ICD-10)] (19), which are almost exclusively based upon phenomenology, and not genetics, etiology, or pathophysiology. Somatic symptom disorders and other related symptoms strongly prove the capacities of the clinicians. Therapists need to evaluate the comparative influence of psychological aspects to somatic symptoms.

Anxiety disorders and mood disorders commonly produce physical symptoms. Clinicians must to exclude somatic symptoms due another primary psychiatric condition, before considering a somatic symptom disorder diagnosis. Somatic symptoms (somatic symptom disorder in DSM-5) can radically get better with successful treatment of the anxiety or mood disorder.

The Diagnostic and Statistical Manual for Mental Disorders, fifth edition (DSM-5) category of Somatic Symptom Disorders and Other Related Disorders characterizes a group of disorders categorized by thoughts, feelings, or behaviors associated to somatic symptoms. This category represents psychiatric conditions because the somatic symptoms are excessive for any medical disorder that may be present (18). A somatic symptom disorder may exist when the somatic symptom is a focus of attention, is distressing, or is contributing to impairment.

The DSM-5 includes five specific diagnoses in the Somatic Symptom Disorder and Other Related Disorder category (18). Specific Somatic Symptom Disorders diagnoses include: (I) somatic symptom disorder; (II) conversion disorder; (III) psychological factors affecting a medical condition; (IV) factitious disorder; (V) other specific and nonspecific somatic symptom disorders.

DSM-5 produced significant modifications in this category of disorders. This category had previously been named Somatoform Disorders in the DSM, fourth edition, Text revision (DSM-IV-TR) (20,21). Somatic symptom disorder replaces the DSM-IV-TR diagnosis of somatization disorder. Hypochondriasis, pain disorder, and body dysmorphic disorder, conditions listed in the Somatoform Disorders category in DSM-IV-TR have been removed. Psychological factors affecting a medical condition and factitious disorder have been added to the new Somatic Symptom Disorders category. Finally, a residual category of other specific and nonspecific somatic symptom disorder has been created with DSM-5 (21).

The newly defined structure of this category means few research studies of the new disorders have been completed. A research in Belgium described that somatization syndrome is the third highest psychiatric disorder, with a prevalence rate of 8.9%. The first and second most common psychiatric disorders were depression and anxiety disorders (21-23).

Somatic symptom disorders do not appear to individually increase the risk of death. Some evidence exists that somatization disorder is associated with increased risk for suicide attempts (7). Patients with somatic symptom disorders may be misdiagnosed (21,23).

Somatic symptom disorders in severe chronic illnesses may occur in childhood, adolescence, early adulthood or older adults. New understanding of unexplained somatic symptom disorders, in chronic illnesses, should evidence of major depression and anxiety associated with somatization (15,16,21).

In DSM-5 somatic symptom disorder replaces somatization disorder with the following criteria (18,21):

- (I) At least one somatic symptom that results in significant disruption in everyday life;
- (II) Significant actions, thoughts, or feelings about the symptoms;
- (III) Somatic symptom actions, thoughts, or feelings are excessively time consuming, out of proportion to the degree of seriousness, or accompanied by a high level of anxiety.

In palliative care, we have to consider (18,21):

- (I) Conversion disorder—conversion disorder is a somatic symptom-related disorder that characterized by the following:
 - (i) Prominent unexplained neurological symptoms, commonly paralysis or nonepileptic seizures;
 - (ii) Neurological symptoms incompatible with any known neurological or medical disorder.
- (II) Psychological factors affecting other medical conditions—psychological factors affecting other medical conditions has been moved into the somatic disorders category in DSM-5 and is defined by one the following:
 - (i) Psychological factors affecting a documented medical condition in an adverse way such as delayed recovery;
 - (ii) Psychological factors interfere with treatment for medical condition (e.g., contributing to poor treatment adherence);

- (iii) Psychological factors create a unique health risk;
- (iv) Psychological factors exacerbate a medical condition (e.g., anxiety triggering asthma attacks, or pain in cancer).

Physiology of anxiety and psychosomatic symptoms in palliative care: the body's neuro-biochemical and psychobiological response to stress

Modern studies have viewed in the past, the explanation of “psychosomatic” disease with doubts, because no neural networks were identified, nearly related with the neural correlates, to influence autonomic and endocrine systems that control internal organs.

Today we know that distress is the biological response of the body. Generally, acute stress helps survival because it powers organisms to adapt to rapidly changing environmental conditions.

However, Stress may be acute and chronic. In humans, acute stress is related to immediate danger that arises within a fast time and that stimulates the fight-or-flight response of the sympathetic nervous system.

Biochemical variations play a significant role in intermediating neurophysiological reactions to stress in adults and in children. These chemical changes can result in psychosomatic disorders. Most neuro-biochemical variations associated with stress are a consequence of stimulation of the sympathetic nervous system, specifically: the fight-or-flight response. In acute stress, this response triggers the release of substances as catecholamine, which include epinephrine, norepinephrine (NE) and cortisol, from the adrenal glands.

These substances stimulate the body to respond to instantaneous danger by increasing heart rate, increasing oxygen distribution to the brain, dilating blood vessels in skeletal muscles, and increasing blood glucose levels (24–29).

Chronic stress is stimulated by the persistent existence of stress and anxiety that an individual meets every moment in the severe chronic diseases. Psychological suffering and severe physical conditions in chronic diseases are examples of reasons that can cause chronic stress. This type of stress involves long-term stimulus of the fight-or-flight response.

Traumatic stress can be related to chronic stress described in a life-threatening event (like cancer or a severe chronic disease) that induces fear and vulnerability. Traumatic stress belongs to psychosomatic disorders as well

as to the development of post-traumatic stress disorder.

A number of neurotransmitters, neuropeptides, and hormones have been related to the longer-term psychiatric outcome in psychosomatic disorders.

Psychosomatic disorders subsequent from acute and chronic distress may comprise pain, anxiety, hypertension, respiratory failure, gastrointestinal disturbances, migraine and tension headaches, dermatitis, fibromyalgia and ulcers.

However, pain and anxiety are the most recurrent stress-response' symptoms in palliative care.

In palliative care, the person's pain and anxiety should be recognized as a real physiological present problem for the patient, related to neurobiochemical alterations. Efforts to discriminate “real” and “unreal” pain, “physical” and “psychosomatic” are commonly unproductive and only succeed in challenging such patients to attempt to prove further the “reality” of their suffering. The patient can appreciate that there may not be just an anesthesiologic or pharmacological therapy to his suffering, such as the use of the nerve blocks, or medicines and opioids, so the patient must be prepared to experience a psychological therapy. Many features may contribute to the symptoms. Severe chronic diseases and associated depression and anxiety, may all be situations in which the persons use the behavior of suffering and physical pain to communicate their distress.

In chronic stress, incessant stimulation of the fight-or-flight reaction leads to continuous secretion of catecholamines. This has a variability of physiological concerns, as well as hyperglycemia, which can lead to type II diabetes mellitus, and hypertension, which can lead to cardiovascular illnesses. Because some catecholamines such as NE act as neurotransmitters in the brain, these substances can change cognition and other mental processes, leading to poor concentration, mood variations, tension, depression and anxiety. Moreover, long-term stress-induced cortisol secretion from the adrenal glands can reduce immune function, leading to increased risk of disease (21,24,29).

For a better understanding of the neurobiochemical connections of the psychosomatic symptoms, we can précis the pathophysiology of the Autonomic Nervous System (ANS) and its function during chronic stress.

The ANS is composed of two units: sympathetic and parasympathetic systems. The sympathetic system originates from the thoracolumbar regions (T1–L2) of the spinal cord. The parasympathetic system originates from craniosacral regions (brainstem nuclei CN III, VII, IX, and X as well as sacral levels S2–S4). In general, two neurons combine to link each effector organ with its respective sympathetic

or parasympathetic system. The first neuron is called the preganglionic neuron, and the second is the postganglionic neuron. These neurons synapse together in the autonomic ganglia. The exception to this is the adrenal medulla, which is connected directly to the preganglionic neuron.

Both sympathetic and parasympathetic preganglionic neurons are cholinergic, meaning they release acetylcholine (ACh) at the synapse in the ganglion. In the parasympathetic system, postganglionic neurons are also cholinergic. However most sympathetic postganglionic neurons are adrenergic (meaning they release NE), but a few are cholinergic such as the ones to sweat glands and to smooth muscles of certain blood vessels. In the cholinergic synapse, released ACh is degraded down by the enzyme acetylcholinesterase, or reabsorbed into the preganglionic neuron. In the adrenergic synapse, released NE is either reabsorbed into the preganglionic neuron or degraded by catechol-o-methyl transferase (COMT) enzyme.

Generally, the parasympathetic system controls the “rest & digest” functions, and the sympathetic system controls the “fight or flight” functions. However, the exact response of the effector organ is related to the categories of receptors present. For example, the sympathetic system will release NE at both alpha and beta receptors. Some effector organs will have only alpha receptors, some only beta receptors, and some a mixture of both and the response will be related on the relative ratio of these receptors. An example of this is vascular tone. Sympathetic stimulation of an alpha receptor results in vasoconstriction, while stimulation of a beta receptor results in vasodilation.

At this point we can understand which relationship is possible between stress, anxiety and psychosomatic disorders in severe chronic diseases, and how is important its diagnosis and treatment. We can have diverse reactions due to the stimulus of “rest & digest” functions, or “fight or flight” functions. To understand the psychosomatic symptoms we have to remember: acute or chronic stress and pain are responsible for stimulating the adrenal medullae; which are the efferent pathways; the sympathetic and parasympathetic role; the neurotransmitters, their receptors, their activity and the functions of the ANS. The ANS is important in the maintenance of homeostasis.

ANS is also studied as the visceral or involuntary nervous system. Its functions are existent without conscious, voluntary control. Because it innervates cardiac muscle, smooth muscle, and various endocrine and exocrine glands, ANS influences the activity of most organ systems in the body. Consequently, the ANS makes an important

role to homeostasis of neurotransmitters, neuropeptides, and hormones. The regulation of blood pressure, gastrointestinal responses to stress, contraction of the urinary bladder, focusing of the eyes, and thermoregulation are just a few of the many homeostatic functions controlled by the ANS.

Neurotransmitters, neuropeptides, and hormones have been shown to be significantly altered by psychological stress. They have significant functional role, and mediate the neural mechanisms and neural circuits related to the regulation of neuropsychological symptoms, and psychosocial behavior.

Psychological distress has been demonstrated to increase the synthesis and release of Cortisol. Cortisol has many different characteristics including increased arousal, vigilance, focused attention, and memory development. The behavioral effects of Cortisol are due, in part, to regulatory effects on the hippocampus, amygdala, and prefrontal cortex (30,31). Glucocorticoids increase amygdala activity, perhaps as a consequence of enhanced corticotropin-releasing hormone (CRH) function in the central nucleus of the amygdala (CeA) (32,33). Cortisol similarly increases the effects of CRH on fear (34), and helps the encoding of emotion-related memory (35). Several of the properties of Cortisol, mostly those outside the hypothalamo-pituitary-adrenal (HPA) axis, are related via an interaction with the glucocorticoid receptor (GR).

Further adrenal steroid that is strictly connected to the stress response is dehydroepiandrosterone (DHEA). DHEA is secreted with Cortisol in reaction to fluctuating adrenocorticotrophic hormone (ACTH) levels (36). There is evidence that DHEA possesses anti glucocorticoid and antigitamatergic properties in the brain (37,38). Since peripherally produced DHFA is thought to be a major source of brain DHEA, it is likely that within the brain regionally specific metabolism of DHEA may ultimately control the nature of DHEA's effects on cognition and behavior (37-39). There are emerging data that DHFA may be involved in the reason why some people are resilient in the face of psychological stress (39).

The CRH is another significant mediator of the stress response (40), as reflected by the stress-induced release of CRH from the hypothalamus into the hypothalamo-pituitary portal circulation resulting in activation of HPA axis and the increased release of Cortisol and DHEA. The extrahypothalamic effects of CRH are very important. Many brain regions have neurons that contain CRH, they are: the PFC, the cingulate cortex, the CeA, the bed nucleus

of the stria terminalis (BNST), the nucleus accumbens (NAc), the periaqueductal gray (PAG), and brain stem nuclei, such as the major NE-containing nucleus, the locus ceruleus (LC) and the serotonin nuclei in the dorsal and median raphe (41-44).

Neuropeptide Y (NPY) is the most abundant neuropeptides in mammalian brain with high concentrations in the LC (45), in paraventricular nucleus of the hypothalamus (46), in septohippocampal neurons (47), in nucleus of solitary tract and ventrolateral medulla (48). Moderate levels are in the amygdala, hippocampus, cerebral cortex, basal ganglia, and the thalamus (49). NPY has anxiolytic features. These effects are mediated at least, in part, by NPY-1 receptors in the amygdala (50-55). The anxiolytic effects of NPY may also involve effects on LC function, since NPY reduces the firing of LC neurons via the NPY-2 receptor (56). Another brain region possibly underlying the anxiolytic action of NPY is the hippocampus (56). The functional interactions between NPY and CRH may be related to vulnerability to anxiety disorders (57-65).

There is developing confirmation that serotonin neuronal role may be connected to susceptibility to anxiety disorders, mostly in the setting of difficult life events. The problem is which aspects of serotonin function are most involved. The behavioral phenotype of serotonin (5-hydroxytryptamine) 5-HT_{1A} (in mice) includes increases in anxiety-like behaviors. These behaviors are mediated by postsynaptic 5-HT_{1A} receptors in the hippocampus, amygdala, and cortex (66). A very significant study found that human subjects with a specific polymorphism of the 5-HTT gene (allele) are particularly vulnerable to depression succeeding the experience of difficult life events. Similar gene-environment investigations are needed in patients with anxiety disorders (67-72).

How the cognitive and behavioral areas of the cerebral cortex stimulate the adrenal medulla? How and where does the brain affect the body and its physiology?

Recent researches recognized important areas in the cerebral cortex that are connected through multisynaptic networks to the adrenal medulla. The most significant network originates from the motor areas that are associated to the skeletomotor control from response selection, to the motor performance. A smaller influence initiates from a network in medial prefrontal cortex that is involved in the regulation of cognition and emotion. Thus, cortical areas not only regulate movement, but they are possible cause of central commands to influence sympathetic arousal. These consequences provide an anatomical basis for psychosomatic illness where the psychological states can modify the organ

functions (73).

The cortical areas of the motor network are interrelated. Additionally, all of these cortical motor areas project directly to the spinal cord and to regions of the reticular formation. Consequently, descending cortico-spinal and corticobulbo-spinal pathways may intermediate some or all of the effect of the motor network on the adrenal medulla. This assumption is maintained by classic studies that confirmed that surface stimulation in restricted regions of brain (M1 and the PMD) evoked variations in blood pressure. These changes survived lesions of the fifth nerve and hypothalamus, but were stopped by lesions of the pyramidal tract (74-82).

These researches have a amount of significant functional correlations. First, they highlight the meaning of the cortical motor areas in the top-down influence over the adrenal medulla during distress and psychosomatic disorders. Normal limb and body activities are accompanied by coordinated variations in sympathetic output, which are related to the metabolic demands of the task (73). A significant factor of the sympathetic activity is thought to be due to a "central command" that can precede change in muscle activity (73,83-85). This network is a predictive reaction because it prepares the body to meet the metabolic requirements of actions like muscular activity, emotional conditions, and fight or flight. Systematic researchers propose that the central commands to make for and generate visceromotor output originate from the same cortical areas that are involved in the preparation and generation of skeletomotor output. The co-localization of visceromotor and skeletomotor role may provide a mechanism to simplify the organization of these two motor systems (73,85-87).

Several studies found that the top-down influence over the adrenal medulla by M1 originates mainly from its trunk representation. This region of M1 projects to thoracic segments of the spinal cord (73,86). These spinal segments also comprise the sympathetic preganglionic neurons that form the final common pathway to the adrenal medulla (73,86,87). These explanations propose that there is a link between the descending control of "core muscles" and the regulation of sympathetic output (88-93).

In numerous persons with anxiety disorders, particularly those with severe chronic diseases fear conditioning causes intense recall of memories of traumatic situations and autonomic hyperactive arousal (73).

Fear habituation is theorized as a form of associative learning in which patients have fear responses to neutral

conditioned stimuli (CS), which are combined with aversive unconditioned stimuli (US) (73). Because of this combination, the CS gets the aptitude to elicit a spectrum of behavioral, autonomic, and endocrine responses that normally would only occur. Fear conditioning can be adaptive and allow efficient behavior in dangerous circumstances. In persons with anxiety disorders, specific environmental features (CS) may be linked to the traumatic experience (US), such that re-exposure to a similar environment generates a repetition of symptoms of anxiety and fear. Patients with anxiety disorders frequently generalize these signs and experience an unceasing insight of threat to the point that they become conditioned to context. A chronic state of anxiety succeeds.

The neural circuitry that mediates fear-conditioning phenomena has been well worked out.

Cue-specific CS is conducted to the thalamus by external and visceral networks. Afferents then reach the lateral amygdala via two parallel circuits. A rapid subcortical path directly from the dorsal (sensory) thalamus and a slower regulatory cortical pathway encompassing primary somatosensory cortices, the insula, and anterior cingulate/PFC. Contextual CS are projected to the lateral amygdala from the hippocampus and perhaps the BNST. The long loop pathway indicates that sensory information relayed to the amygdala undergoes substantial higher level processing, thereby enabling assignment of significance, based upon prior experience, to complex stimuli (73,94-97).

This relationship could explain a neural substrate for the control of stress and psychosomatic disorders (98-120). We can cure the psychosomatic disorders with the aid of the mind-body exercises, such as relaxation, visual imagery, yoga's practices, mindfulness, autogenic training, hypnosis and self-hypnosis (15-17,121-128).

The ANS plays a central role in the preservation of homeostasis. Additionally, this structure may play a role in many systemic diseases and psychosomatic disorders.

Autonomic reflexes mainly control the efferent nervous activity of the ANS. In several of these reflexes, sensory output is transmitted to homeostatic control centers, in specific, those situated in the hypothalamus and brainstem. Much of the sensory input from the thoracic and abdominal viscera is transmitted to the brainstem by afferent fibers of cranial nerve X, the vagus nerve. Additional cranial nerves also contribute sensory input to the hypothalamus and the brainstem. This input is integrated and a reaction is carried out by the transmission of nerve signals that adjust the action of preganglionic autonomic neurons. Numerous

significant variables in the body are checked and regulated in the hypothalamus and the brainstem, including heart rate, blood pressure, gastrointestinal peristalsis and glandular secretion, body temperature, hunger, thirst, plasma volume, and plasma osmolarity (129).

Higher brain areas may, also effect these neural control centers in the hypothalamus and the brainstem. Exactly, the cerebral cortex and the limbic system influence ANS actions related with emotional replies by way of hypothalamic-brainstem pathways.

The ANS is composed of two anatomically and functionally distinct networks, the sympathetic system and the parasympathetic system. Equally the systems are active. In other words, they provide some degree of nervous input to a given tissue at all times. Therefore, the frequency of discharge of neurons in both systems can either increase or decrease. As a result, the body response may be either enhanced or inhibited. This feature of the ANS increases its capability to more precisely control an organ's role. Without tonic activity, nervous input to a tissue could only increase (129).

However, ANS can be overstimulated throughout acute (sympathetic) or chronic (parasympathetic) stress, with the consequence of psychosomatic symptoms and disorders.

Many organs are innervated by both systems. Since the sympathetic system and the parasympathetic system naturally have contrasting effects on a given organ in the body, increasing the action of one system while simultaneously decreasing the action of the other results in very rapid and specific regulation of an organ's role. Each system is prevailing under certain situations.

The sympathetic system prevails during emergency "fight-or-flight" responses and throughout acute stress. The overall consequence of the sympathetic system under these environments is to get ready the body for dynamic physical action. More explicitly, sympathetic nervous activity will growth the flow of blood that is well oxygenated to the organs that require it, in particular, the working skeletal muscles. The long postganglionic neurons originating in the ganglion chain then travel outward and terminate on the effector tissues. This discrepancy of the preganglionic neuron results in coordinated sympathetic stimulation to tissues throughout the organs. The simultaneous stimulus of many tissues in the body is related to the significant sympathetic role. These ganglia are located about halfway between the CNS and the effector tissue (129).

In conclusion, the preganglionic neuron may travel to the adrenal medulla and synapse directly with this glandular

tissue. The cells of the adrenal medulla have the same embryonic derivation as neural tissue and, in fact, work as modified postganglionic neurons. Instead of the release of neurotransmitter directly at the synapse with an effector tissue, the secretory products of the adrenal medulla are picked up by the blood and travel throughout the body to all of the effector tissues of the sympathetic system.

A central importance of this system that is relatively different from the parasympathetic system is that the postganglionic neurons of the sympathetic system travel within each of the 31 pairs of spinal nerves. Interestingly, 8% of the fibers that create a spinal nerve are sympathetic fibers. This allows for the distribution of sympathetic nerve fibers to the effectors of the tissues as well as blood vessels and sweat glands. Indeed, most innervated blood vessels in the entire body, primarily arterioles and veins, receive only sympathetic nerve fibers. Consequently, vascular smooth muscle tone and sweating are regulated by the sympathetic system only. Furthermore, the sympathetic system innervates structures of the head (eye, salivary glands, mucus membranes of the nasal cavity), thoracic viscera (heart, lungs) and viscera of the abdominal and pelvic cavities (e.g., stomach, intestines, pancreas, spleen, adrenal medulla, urinary bladder) (129-134).

The parasympathetic system prevails in the course of quiet, resting state and it can be overstimulated during chronic stress and anxiety. The preganglionic neurons that arise from the brainstem exit the CNS through the cranial nerves: the oculomotor nerve (III) innervates the eyes; the facial nerve (VII) innervates the lacrimal gland, the salivary glands and the mucus membranes of the nasal cavity; the glossopharyngeal nerve (IX) innervates the parotid (salivary) gland; and the vagus nerve (X) innervates the viscera of the thorax and the abdomen (e.g., heart, lungs, stomach, pancreas, small intestine, upper half of the large intestine, and liver). The physiological implication of this nerve in relations of the influence of the parasympathetic system is evidently explained by its widespread distribution and the fact that 75% of all parasympathetic fibers are in the vagus nerve. The preganglionic neurons that arise from the sacral region of the spinal cord exit the CNS and join together to form the pelvic nerves. These nerves innervate the viscera of the pelvic cavity (e.g., lower half of the large intestine and organs of the renal and reproductive systems) (129-134).

Since the terminal ganglia are situated inside the innervated organs, there is naturally slight divergence in the parasympathetic system compared to the sympathetic system. In numerous tissues, there is a 1:1 ratio of

preganglionic fibers to postganglionic fibers. Consequently, the properties of the parasympathetic system have a tendency to be more distinct and localized, with only specific tissues being stimulated at any given moment, associated to the sympathetic system where a more diffuse discharge is probable (129-135).

During acute and chronic stress, the loss of homeostasis between sympathetic and parasympathetic system, generates the psychosomatic symptoms and disorders.

Anxiety and psychosomatic symptoms in palliative care: diagnosis, management and therapy

Somatization is the predisposition to develop psychological suffering in the form of physical symptoms. In 1997 the World Health Organization (WHO) established a collaborative research to study the incidence of psychosomatic symptoms in the primary care setting in 15 cities across the world. The conclusion was that as many as 20 percent of those attending their doctor had at least six medically unexplained symptoms, a suitable number to suggestively damage their quality of life.

We think it is very important to study the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO version for 2016 (19,136). In the “*Mental and behavioral disorders, Chapter V, (F00-F99)*”, we can highlight all the psychosomatic pathologies and symptoms that can be related to stress, anxiety and pain in severe chronic illnesses and in palliative care. The Chapter XVIII contains the: ‘*Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)*’: many of them are related to the psychosomatic symptoms. Following I quote those are more significant in severe chronic diseases.

The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO Version for 2016, Mental and behavioural disorders, Chapter V, (F00-F99) (19,136)

Chapter V refers to taxonomy and symptoms of mental and behavioral disorders and contains the following blocks (we quote only those can be related with the psychosomatic symptoms and disorders):

From: *The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO Version for 2016, Mental and behavioural disorders, Chapter V,*

(F00-F99):

F00-F09 Organic, including symptomatic, mental disorders:

This block comprises a range of mental disorders grouped together on the basis of their having in common a demonstrable etiology in cerebral disease, brain injury, or other insult leading to cerebral dysfunction. The dysfunction may be primary, as in diseases, injuries, and insults that affect the brain directly and selectively; or secondary, as in systemic diseases and disorders that attack the brain only as one of the multiple organs or systems of the body that are involved.

F06 Other mental disorders due to brain damage and dysfunction and to physical disease:

Includes miscellaneous conditions causally related to brain disorder due to primary cerebral disease, to systemic disease affecting the brain secondarily, to exogenous toxic substances or hormones, to endocrine disorders, or to other somatic illnesses.

F07.9 Unspecified organic personality and behavioural disorder due to brain disease, damage and dysfunction: Organic psychosyndrome.

F30-F39 Mood (affective) disorders:

This block contains disorders in which the fundamental disturbance is a change in affect or mood to depression (with or without associated anxiety) or to elation. The mood change is usually accompanied by a change in the overall level of activity; most of the other symptoms are either secondary to, or easily understood in the context of, the change in mood and activity. Most of these disorders tend to be recurrent and the onset of individual episodes can often be related to stressful events or situations.

F30 Manic episode:

All the subdivisions of this category should be used only for a single episode. Hypomanic or manic episodes in individuals who have had one or more previous affective episodes (depressive, hypomanic, manic, or mixed) should be coded as bipolar affective disorder (F31.-). Incl.: bipolar disorder, single manic episode.

F31 Bipolar affective disorder:

A disorder characterized by two or more episodes in which the patient's mood and activity levels are significantly disturbed, this disturbance consisting on some occasions of an elevation of mood and increased energy and activity (hypomania or mania) and on others of a lowering of mood and decreased energy and activity (depression). Repeated episodes of hypomania or mania only are classified as bipolar. Incl.: manic depression; manic-depressive: illness, psychosis, reaction.

F32 Depressive episode:

In typical mild, moderate, or severe depressive episodes, the patient suffers from lowering of mood, reduction of energy, and decrease in activity. Capacity for enjoyment, interest, and

concentration is reduced, and marked tiredness after even minimum effort is common. Sleep is usually disturbed and appetite diminished. Self-esteem and self-confidence are almost always reduced and, even in the mild form, some ideas of guilt or worthlessness are often present. The lowered mood varies little from day to day, is unresponsive to circumstances and may be accompanied by so-called "somatic" symptoms, such as loss of interest and pleasurable feelings, waking in the morning several hours before the usual time, depression worst in the morning, marked psychomotor retardation, agitation, loss of appetite, weight loss, and loss of libido. Depending upon the number and severity of the symptoms, a depressive episode may be specified as mild, moderate or severe. Incl.: single episodes of: depressive reaction, psychogenic depression, reactive depression.

F38 Other mood (affective) disorders:

Any other mood disorders do not justify classification to F30-F34, because they are not of sufficient severity or duration.

F40-F48 Neurotic, stress-related and somatoform disorders:

F40 Phobic anxiety disorders:

A group of disorders in which anxiety is evoked only, or predominantly, in certain well-defined situations that are not currently dangerous. As a result these situations are characteristically avoided or endured with dread. The patient's concern may be focused on individual symptoms like palpitations or feeling faint and is often associated with secondary fears of dying, losing control, or going mad. Contemplating entry to the phobic situation usually generates anticipatory anxiety. Phobic anxiety and depression often coexist. Whether two diagnoses, phobic anxiety and depressive episode, are needed, or only one, is determined by the time course of the two conditions and by therapeutic considerations at the time of consultation.

F41 Other anxiety disorders:

Disorders in which manifestation of anxiety is the major symptom and is not restricted to any particular environmental situation. Depressive and obsessional symptoms, and even some elements of phobic anxiety, may also be present, provided that they are clearly secondary or less severe.

F42 Obsessive-compulsive disorder:

The essential feature is recurrent obsessional thoughts or compulsive acts. Obsessional thoughts are ideas, images, or impulses that enter the patient's mind again and again in a stereotyped form. They are almost invariably distressing and the patient often tries, unsuccessfully, to resist them. They are, however, recognized as his or her own thoughts, even though they are involuntary and often repugnant. Compulsive acts or rituals are stereotyped behaviours that are repeated again and again. They are not inherently enjoyable, nor do they result in the completion of inherently useful tasks. Their function is to prevent

some objectively unlikely event, often involving harm to or caused by the patient, which he or she fears might otherwise occur. Usually, this behaviour is recognized by the patient as pointless or ineffectual and repeated attempts are made to resist. Anxiety is almost invariably present. If compulsive acts are resisted the anxiety gets worse.

F43 Reaction to severe stress, and adjustment disorders:

This category differs from others in that it includes disorders identifiable on the basis of not only symptoms and course but also the existence of one or other of two causative influences: an exceptionally stressful life event producing an acute stress reaction, or a significant life change leading to continued unpleasant circumstances that result in an adjustment disorder. Although less severe psychosocial stress ("life events") may precipitate the onset or contribute to the presentation of a very wide range of disorders classified elsewhere in this chapter, its etiological importance is not always clear and in each case will be found to depend on individual, often idiosyncratic, vulnerability, i.e., the life events are neither necessary nor sufficient to explain the occurrence and form of the disorder. In contrast, the disorders brought together here are thought to arise always as a direct consequence of acute severe stress or continued trauma. The stressful events or the continuing unpleasant circumstances are the primary and overriding causal factor and the disorder would not have occurred without their impact. The disorders in this section can thus be regarded as maladaptive responses to severe or continued stress, in that they interfere with successful coping mechanisms and therefore lead to problems of social functioning.

F44 Dissociative (conversion) disorders:

The common themes that are shared by dissociative or conversion disorders are a partial or complete loss of the normal integration between memories of the past, awareness of identity and immediate sensations, and control of bodily movements. All types of dissociative disorders tend to remit after a few weeks or months, particularly if their onset is associated with a traumatic life event. More chronic disorders, particularly paralyses and anaesthesias, may develop if the onset is associated with insoluble problems or interpersonal difficulties. These disorders have previously been classified as various types of "conversion hysteria". They are presumed to be psychogenic in origin, being associated closely in time with traumatic events, insoluble and intolerable problems, or disturbed relationships. The symptoms often represent the patient's concept of how a physical illness would be manifest. Medical examination and investigation do not reveal the presence of any known physical or neurological disorder. In addition, there is evidence that the loss of function is an expression of emotional conflicts or needs. The symptoms may develop in close relationship to psychological stress, and often appear suddenly. Only disorders

of physical functions normally under voluntary control and loss of sensations are included here. Disorders involving pain and other complex physical sensations mediated by the ANS are classified under somatization disorder (F45.0). The possibility of the later appearance of serious physical or psychiatric disorders should always be kept in mind.

F45 Somatoform disorders:

The main feature is repeated presentation of physical symptoms together with persistent requests for medical investigations, in spite of repeated negative findings and reassurances by doctors that the symptoms have no physical basis. If any physical disorders are present, they do not explain the nature and extent of the symptoms or the distress and preoccupation of the patient.

F45.0 Somatization disorder:

The main features are multiple, recurrent and frequently changing physical symptoms of at least two years duration. Most patients have a long and complicated history of contact with both primary and specialist medical care services, during which many negative investigations or fruitless exploratory operations may have been carried out. Symptoms may be referred to any part or system of the body. The course of the disorder is chronic and fluctuating, and is often associated with disruption of social, interpersonal, and family behaviour. Short-lived (less than 2 years) and less striking symptom patterns should be classified under undifferentiated somatoform disorder (F45.1).

F45.1 Undifferentiated somatoform disorder:

When somatoform complaints are multiple, varying and persistent, but the complete and typical clinical picture of somatization disorder is not fulfilled, the diagnosis of undifferentiated somatoform disorder should be considered: Undifferentiated psychosomatic disorder

F45.2 Hypochondriacal disorder:

The essential feature is a persistent preoccupation with the possibility of having one or more serious and progressive physical disorders. Patients manifest persistent somatic complaints or a persistent preoccupation with their physical appearance. Normal or commonplace sensations and appearances are often interpreted by patients as abnormal and distressing, and attention is usually focused upon only one or two organs or systems of the body. Marked depression and anxiety are often present, and may justify additional diagnoses: Body dysmorphic disorder, Dysmorphophobia (nondelusional), Hypochondriacal neurosis, Hypochondriasis, Nosophobia.

F45.3 Somatoform autonomic dysfunction:

Symptoms are presented by the patient as if they were due to a physical disorder of a system or organ that is largely or completely under autonomic innervation and control, i.e., the cardiovascular, gastrointestinal, respiratory and urogenital systems. The

symptoms are usually of two types, neither of which indicates a physical disorder of the organ or system concerned. First, there are complaints based upon objective signs of autonomic arousal, such as palpitations, sweating, flushing, tremor, and expression of fear and distress about the possibility of a physical disorder. Second, there are subjective complaints of a nonspecific or changing nature such as fleeting aches and pains, sensations of burning, heaviness, tightness, and feelings of being bloated or distended, which are referred by the patient to a specific organ or system:

- ❖ Cardiac neurosis
- ❖ Da Costa syndrome
- ❖ Gastric neurosis
- ❖ Neurocirculatory asthenia

Psychogenic forms of:

- ❖ aerophagy
- ❖ cough
- ❖ diarrhoea
- ❖ dyspepsia
- ❖ dysuria
- ❖ flatulence
- ❖ hiccough
- ❖ hyperventilation
- ❖ increased frequency of micturition
- ❖ irritable bowel syndrome
- ❖ pylorospasm.

F45.4 Persistent somatoform pain disorder:

The predominant complaint is of persistent, severe, and distressing pain, which cannot be explained fully by a physiological process or a physical disorder, and which occurs in association with emotional conflict or psychosocial problems that are sufficient to allow the conclusion that they are the main causative influences. The result is usually a marked increase in support and attention, either personal or medical. Pain presumed to be of psychogenic origin occurring during the course of depressive disorders or schizophrenia should not be included here:

- (I) Psychalgia;
- (II) Psychogenic:
 - (i) backache
 - (ii) headache
- (III) Somatoform pain disorder.

F45.8 Other somatoform disorders:

Any other disorders of sensation, function and behaviour, not due to physical disorders, which are not mediated through the ANS, which are limited to specific systems or parts of the body, and which are closely associated in time with stressful events or problems.

Psychogenic:

- (I) dysmenorrhoea

- (II) dysphagia, including "globus hystericus";
- (III) pruritus;
- (IV) torticollis;
- (V) teeth-grinding.

F45.9 Somatoform disorder, unspecified:

Psychosomatic disorder NOS.

F48 Other neurotic disorders:

F48.0 Neurasthenia:

Considerable cultural variations occur in the presentation of this disorder, and two main types occur, with substantial overlap. In one type, the main feature is a complaint of increased fatigue after mental effort, often associated with some decrease in occupational performance or coping efficiency in daily tasks. The mental fatigability is typically described as an unpleasant intrusion of distracting associations or recollections, difficulty in concentrating, and generally inefficient thinking. In the other type, the emphasis is on feelings of bodily or physical weakness and exhaustion after only minimal effort, accompanied by a feeling of muscular aches and pains and inability to relax. In both types a variety of other unpleasant physical feelings is common, such as dizziness, tension headaches, and feelings of general instability. Worry about decreasing mental and bodily well-being, irritability, anhedonia, and varying minor degrees of both depression and anxiety are all common. Sleep is often disturbed in its initial and middle phases but hypersomnia may also be prominent: Fatigue syndrome.

F50-F59 Behavioural syndromes associated with physiological disturbances and physical factors:

F50 Eating disorders:

F50.0 Anorexia nervosa:

A disorder characterized by deliberate weight loss, induced and sustained by the patient. It occurs most commonly in adolescent girls and young women, but adolescent boys and young men may also be affected, as may children approaching puberty and older women up to the menopause. The disorder is associated with a specific psychopathology whereby a dread of fatness and flabbiness of body contour persists as an intrusive overvalued idea, and the patients impose a low weight threshold on themselves. There is usually undernutrition of varying severity with secondary endocrine and metabolic changes and disturbances of bodily function. The symptoms include restricted dietary choice, excessive exercise, induced vomiting and purgation, and use of appetite suppressants and diuretics.

F50.1 Atypical anorexia nervosa:

Disorders that fulfil some of the features of anorexia nervosa but in which the overall clinical picture does not justify that diagnosis. For instance, one of the key symptoms, such as amenorrhoea or marked dread of being fat, may be absent in the

presence of marked weight loss and weight-reducing behaviour. This diagnosis should not be made in the presence of known physical disorders associated with weight loss.

F50.2 *Bulimia nervosa*:

A syndrome characterized by repeated bouts of overeating and an excessive preoccupation with the control of body weight, leading to a pattern of overeating followed by vomiting or use of purgatives. This disorder shares many psychological features with *anorexia nervosa*, including an overconcern with body shape and weight. Repeated vomiting is likely to give rise to disturbances of body electrolytes and physical complications. There is often, but not always, a history of an earlier episode of *anorexia nervosa*, the interval ranging from a few months to several years.

F50.5 *Vomiting associated with other psychological disturbances*.

F50.8 *Other eating disorders*:

Psychogenic loss of appetite.

F51 *Nonorganic sleep disorders*:

In many cases, a disturbance of sleep is one of the symptoms of another disorder, either mental or physical. Whether a sleep disorder in a given patient is an independent condition or simply one of the features of another disorder classified elsewhere, either in this chapter or in others, should be determined on the basis of its clinical presentation and course as well as on the therapeutic considerations and priorities at the time of the consultation. Generally, if the sleep disorder is one of the major complaints and is perceived as a condition in itself, the present code should be used along with other pertinent diagnoses describing the psychopathology and pathophysiology involved in a given case. This category includes only those sleep disorders in which emotional causes are considered to be a primary factor, and which are not due to identifiable physical disorders classified elsewhere.

F51.0 *Nonorganic insomnia*:

A condition of unsatisfactory quantity and/or quality of sleep, which persists for a considerable period of time, including difficulty falling asleep, difficulty staying asleep, or early final waking. Insomnia is a common symptom of many mental and physical disorders, and should be classified here in addition to the basic disorder only if it dominates the clinical picture.

F51.1 *Nonorganic hypersomnia*:

Hypersomnia is defined as a condition of either excessive daytime sleepiness or sleep attacks (not accounted for by an inadequate amount of sleep) or prolonged transition to the fully aroused state upon awakening. In the absence of an organic factor for the occurrence of hypersomnia, this condition is usually associated with mental disorders.

F51.2 *Nonorganic disorder of the sleep-wake schedule*:

A lack of synchrony between the sleep-wake schedule and the

desired sleep-wake schedule for the individual's environment result in a complaint of either insomnia or hypersomnia.

F51.4 *Sleep terrors (night terrors)*:

Nocturnal episodes of extreme terror and panic associated with intense vocalization, motility, and high levels of autonomic discharge. The individual sits up or gets up, usually during the first third of nocturnal sleep, with a panicky scream. Quite often he or she rushes to the door as if trying to escape, although very seldom leaves the room. Recall of the event, if any, is very limited (usually to one or two fragmentary mental images).

F51.5 *Nightmares*:

Dream experiences loaded with anxiety or fear. There is very detailed recall of the dream content. The dream experience is very vivid and usually includes themes involving threats to survival, security, or self-esteem. Quite often there is a recurrence of the same or similar frightening nightmare themes. During a typical episode there is a degree of autonomic discharge but no appreciable vocalization or body motility. Upon awakening the individual rapidly becomes alert and oriented.

F51.8 *The nonorganic sleep disorders*.

F51.9 *Nonorganic sleep disorder, unspecified*:

Emotional sleep disorder NOS.

F52 *Sexual dysfunction, not caused by organic disorder or disease*:

Sexual dysfunction covers the various ways in which an individual is unable to participate in a sexual relationship as he or she would wish. Sexual response is a psychosomatic process and both psychological and somatic processes are usually involved in the causation of sexual dysfunction.

F54 *Psychological and behavioural factors associated with disorders or diseases classified elsewhere*:

This category should be used to record the presence of psychological or behavioural influences thought to have played a major part in the aetiology of physical disorders which can be classified to other chapters. Any resulting mental disturbances are usually mild, and often prolonged (such as worry, emotional conflict, apprehension) and do not of themselves justify the use of any of the categories in this chapter.

F60-F69 *Disorders of adult personality and behaviour*:

This block includes a variety of conditions and behaviour patterns of clinical significance which tend to be persistent and appear to be the expression of the individual's characteristic lifestyle and mode of relating to himself or herself and others.

F62 *Enduring personality changes, not attributable to brain damage and disease*:

Disorders of adult personality and behaviour that have developed in persons with no previous personality disorder following exposure to catastrophic or excessive prolonged stress.

F62.8 Other enduring personality changes:

Chronic pain personality syndrome.

F63.8 Other habit and impulse disorders:

Other kinds of persistently repeated maladaptive behaviour that are not secondary to a recognized psychiatric syndrome, and in which it appears that the patient is repeatedly failing to resist impulses to carry out the behaviour. There is a prodromal period of tension with a feeling of release at the time of the act.

F68 Other disorders of adult personality and behaviour.

F68.0 Elaboration of physical symptoms for psychological reasons:

Physical symptoms compatible with and originally due to a confirmed physical disorder, disease or disability become exaggerated or prolonged due to the psychological state of the patient. The patient is commonly distressed by this pain or disability, and is often preoccupied with worries, which may be justified, of the possibility of prolonged or progressive disability or pain: Compensation neurosis.

The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO Version for 2016; Chapter XVIII: ‘Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified’ (R00-R99) (136)

This chapter comprises symptoms, signs, abnormal results of clinical or other investigative procedures, and ill-defined situations concerning which no diagnosis classifiable elsewhere is recorded. Signs and symptoms that point rather definitely to a given diagnosis have been assigned to a category in other chapters of the classification. Over all, categories in this chapter include the less well-defined conditions and symptoms that, without the required study of the case to found a final diagnosis, point perhaps equally to two or more diseases or to two or more systems of the body. Essentially all categories in the chapter could be designated “not otherwise specified”, “unknown etiology” or “transient”.

From: The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO Version for 2016; Chapter XVIII: ‘Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified’ (R00-R99) (136):

Chapter XVIII refers to ‘Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified’ and contains the following blocks that can be related sometimes to psychosomatic symptoms and disorders in severe chronic illnesses and in palliative care:

❖ *R00-R09 Symptoms and signs involving the circulatory and respiratory systems;*

❖ *R10-R19 Symptoms and signs involving the digestive system and abdomen;*

❖ *R20-R23 Symptoms and signs involving the skin and subcutaneous tissue;*

❖ *R25-R29 Symptoms and signs involving the nervous and musculoskeletal systems;*

❖ *R30-R39 Symptoms and signs involving the urinary system;*

❖ *R40-R46 Symptoms and signs involving cognition, perception, emotional state and behaviour;*

❖ *R47-R49 Symptoms and signs involving speech and voice*

❖ *R50-R69 General symptoms and signs (136).*

Symptoms may be briefly acute or a more prolonged but acute or chronic, relapsing or remitting. Non-specific symptoms are self-reported symptoms that generally do not indicate a specific relationship with the disease process.

We can summarize the characteristics and the signs of psychosomatic disorders in palliative care, according to the DSM-5 and the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)-WHO Version for 2016, with the following clinical criteria:

(I) *Undifferentiated somatoform disorder: symptoms that are included here are appetite loss, pain, fatigue, and gastrointestinal symptoms, not related to the severe chronic disease;*

(II) *Somatization disorder: the symptoms that frequently appear in most people are pain, gastrointestinal symptoms, sexual symptoms, fatigue, menstrual symptoms, and neurological symptoms, not related to the severe chronic disease;*

(III) *Unspecified somatoform disorder: when symptoms appear from two or more different types of somatoform disorders, this is the diagnosis given. The unspecified nature of this disorder means that the symptoms are going to vary, but in general they center around complaints about pain that have no medical cause. Because of the unspecified nature of this somatoform disorder, the symptoms may vary wildly from person to person, but they generally may include an extreme fear of having this symptom because they think to be at the end of life: they have loss of sight or paralysis without a physical cause, and chronic complaints about pain. Another common indicator of this disorder is that the pain will not be able to be diagnosed medically. The symptoms are not related to the severe chronic disease;*

(IV) *Conversion disorder: its most common symptoms are comprised of sudden illness attacks, inability to make any voice sound, unconsciousness, drooping of upper eyelids,*

vision problems, inability to use one or more body parts, and sensation loss. This kind of medical condition is for people who cannot voluntarily control their senses and body movements;

- (V) *Hypochondriasis: the symptom for this one is having a fear caused by a false belief that a person's symptoms is the result of the dangerous severe health problem that affect the way the person's body functions;*
- (VI) *Body dysmorphic disorder: the only physical symptom included for this kind of psychosomatic disorder is having false beliefs that a person's body parts are defected. This symptom is not related to the severe chronic disease;*
- (VII) *Pain disorder: the symptoms included here are the presence of an excruciating pain in one or more various parts of the body that can lead to a person being unable to fully function within the society without any interruption. The pain is not related to the severe chronic disease.*

The physiological signs of biochemical, physical and psychological changes in acute pain and anxiety are (15,16,29):

- ❖ *Dilated pupils;*
- ❖ *Increased perspiration;*
- ❖ *Increased rate/force of heart rate;*
- ❖ *Increased rate/depth of respirations;*
- ❖ *Increased blood pressure;*
- ❖ *Decreased urine output;*
- ❖ *Decreased peristalsis;*
- ❖ *Increased basal metabolic rate;*
- ❖ *Decreased blood oxygenation;*
- ❖ *Increase HR, RR, PB;*
- ❖ *Shallow respirations;*
- ❖ *Decrease/increase vagal nerve tone;*
- ❖ *Pallor or flushing;*
- ❖ *Diaphoresis, palmar sweating;*
- ❖ *Decrease O₂ saturation;*
- ❖ *EEG changes, like arrhythmias.*

Psychosomatic chronic symptoms in palliative care, pain and anxiety behaviors are cognitively impaired; they are communicated by (15,16,29):

- (I) *Facial expression:*
 - (i) *Slight frown, frightened face;*
 - (ii) *Rapid blinking.*
- (II) *Verbalizations, vocalizations:*
 - (i) *Verbally abusive;*
 - (ii) *Calling out, chanting, grunting.*
- (III) *Body movements:*
 - (i) *Rigid, tense;*
 - (ii) *Fidgeting;*

(iii) *Increased pacing, rocking.*

- (IV) *Changes in interpersonal interactions:*
 - (i) *Aggressive, combative, resisting care;*
 - (ii) *Decreased cultural interaction;*
 - (iii) *Socially inappropriate, disruptive.*
- (V) *Changes in activity patterns or routines:*
 - (i) *Refusing food;*
 - (ii) *Increased rest periods;*
 - (iii) *Sleep pattern changes.*
- (VI) *Mental status changes:*
 - (i) *Crying, tears;*
 - (ii) *Increased confusion;*
 - (iii) *Irritable.*

In Palliative Care, it is important to pay attention to evaluate the taxonomy and the signs and indicators (15,16,29) of anxiety and psychosomatic symptoms.

The psychosomatic symptoms cause psychological and bodily-related signs, including pain. Even if the patient has a concomitant severe chronic disease, the symptoms may or may not be associated to the physical illness. However, nevertheless, they cause excessive levels of distress and a difficult quality of life. All symptoms are, by definition, personal, and all illness occurs in, and is influenced by, a different psychosocial setting.

The chronic psychosomatic symptoms, in palliative care, can involve and growth one or more particular symptoms in the body such as (15,16,29): (I) pain; (II) neurologic problems; (III) gastrointestinal complaints; (IV) urogenital symptoms; (V) respiratory distress; (VI) cardiovascular symptoms; (VII) fibromyalgia; Dermatological symptoms.

Many persons who have psychosomatic disorders may also have an anxiety disorder. The distress patients' involvement from pain and suffering are existent, regardless of whether or not a physical explanation can be found. The suffering from symptoms disturbs daily activities, increasing the disability related with their severe chronic disease. When there is a medical illness causing their symptoms, they may not identify that the quantity of distress they are feeling or presenting is abnormal. Persons may also not recognize that psychiatric symptoms are playing a role in their life.

We can contemplate psychosomatic disorders as physical symptoms that cover emotive and psychological distress: they are very common in severe chronic illnesses. The real nature of the physical appearance of the symptoms hides the distress at its root.

Those who can accept their psychological disorder can have the best chance of a good therapy and quality

of life. Psychosomatic symptoms and disorders must be differentiated from medical aggravation of the severe chronic illnesses and from other medical and psychiatric comorbidity conditions. We need to consider as psychosomatic symptom, the medical settings that cause indefinite and diffuse signs. Moreover, we can study somatization as part of an attitude for anxiety or chronic stress' disorder in palliative care (1,4,5,15).

Psychosomatic disorders may disturb practically any part of the body, however they are frequently found in organs not under voluntary control. Psychiatrist Franz Alexander and his colleagues planned significant researches on psychosomatic disorders at the Chicago Institute of Psychoanalysis in the 1940s and 1960s, proposing that specific personality traits and specific conflicts may generate specific psychosomatic diseases. Nowadays it is generally understood that the cause of a disorder takes is due to individual exposures to distress. Emotive stress in severe chronic illnesses, is expected to worsen existing diseases, and there is some evidence that it may aggravate diseases not typically considered to be psychosomatic (e.g., cancer, diabetes) in individuals predisposed to them (1,2,6,11,13,29,73,137-140).

Commonly, we have to consider that the physical psychosomatic symptoms to threat:

- (I) are correlates of stress and anxiety;
- (II) may maintain stress and anxiety;
- (III) are related to an interaction of automatic (bottom-up) and controlled (goal-directed, top-down) networks.

Psychosomatic signs give understanding into the numerous pathological alterations in the body and can help as a starting point, or a fundamental basis, for diagnosis and treatment. These symptoms are classified according to organ systems, for example as digestive symptoms, respiratory symptoms, cardiovascular symptoms, or nervous system symptoms. This method highlights the symptoms' signals to better manage the case through triage, examination, and a treatment plan. Organic somatic symptoms in palliative care are deeply connected to the pathological alterations in the organ or system of organs. Somatic symptoms can also characterize descriptions of the past experiences of the patient as a consequence of them; the person's somatic symptoms originate from thoughts, suggestion, or self-talk. For example, hysterical blindness may develop a significant regulation mechanism pertinent to this matter (141-148).

The authors Zeng and colleagues in their recent

"Theoretical Construction of a Classification of Clinical Somatic Symptoms in Psychosomatic Medicine Theory" [2016] conclude that: *"Based on the interpretation of the clinical symptoms of psychosomatic medicine, the treatment of chronic non-infectious diseases includes at least three dimensions: the first is the etiological treatment, the second is the pathophysiological and pathopsychological dimension, and the third is symptomatic treatment. The unified psychosomatic point of view and diverse clinical thinking modes are aimed at identifying different classes of somatic symptoms and important prerequisites for the treatment of these symptoms"* (141).

The cognitive theory assumes that the body reproduces the central nervous system symptoms in peripheral tissues and organs; this model is needed for understanding important information and somatization associated to information processing, such as the understanding of pain.

Cognitive models propose that susceptibility to anxiety relates to disorders in some mechanisms comprising biases in bottom-up processes of automatic threat evaluation and automatic initial orienting to threat (149-159), and disturbance in top-down cognitive control processes, comprising controlled attention, elaboration, and override of bottom-up biases. Each of these disorders may generate psychosomatic symptoms (160-165).

Pain must be studied accurately, and understanding of nervous system abnormalities make known individual changes. If the patient suffers from depression, this disease can lead to the development of somatic symptoms and pain (141,143,144,149,165). Nevertheless, we must study a precise diagnosis to confirm the origin of the pain.

The International Association for the Study of Pain, IASP, brings together scientists, clinicians, health-care providers, and policymakers to encourage and promote the study of pain and to translate that knowledge into improved pain relief worldwide. We quote below, the 'IASP pain definition, terms and the scheme for coding chronic pain diagnoses' (simplified) (166), that is very complete and useful as well for the diagnosis of chronic pain in the psychosomatic symptoms.

I quote below the *"IASP PAIN DEFINITION, terms and the scheme for coding chronic pain diagnoses (166): 'Pain an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.'*" (166).

IASP, pain terms (166):

- ❖ *Allodynia: pain due to a stimulus which does not normally provoke pain;*
- ❖ *Analgesia: absence of pain in response to stimulation which*

would normally be painful;

- ❖ *Anesthesia dolorosa*: pain in an area or region which is anesthetic;
- ❖ *Causalgia*: a syndrome of sustained burning pain, allodynia, and hyperpathia after a traumatic nerve lesion, often combined with vasomotor and sudomotor dysfunction and later trophic changes;
- ❖ *Central pain*: pain initiated or caused by a primary lesion or dysfunction in the central nervous system;
- ❖ *Dysesthesia*: an unpleasant abnormal sensation, whether spontaneous or evoked;
- ❖ *Hyperalgesia*: an increased response to a stimulus which is normally painful;
- ❖ *Hyperesthesia*: increased sensitivity to stimulation, excluding the special senses;
- ❖ *Hyperpathia*: a painful syndrome characterized by an abnormally painful reaction to a stimulus, especially a repetitive stimulus, as well as an increased threshold;
- ❖ *Hypoalgesia*: diminished pain in response to a normally painful stimulus;
- ❖ *Hypoesthesia*: decreased sensitivity to stimulation, excluding the special senses;
- ❖ *Neuralgia*: pain in the distribution of a nerve or nerves;
- ❖ *Neuritis*: inflammation of a nerve or nerves;
- ❖ *Neurogenic pain*: pain initiated or caused by a primary lesion, dysfunction, or transitory perturbation in the peripheral or central nervous system;
- ❖ *Neuropathic pain*: pain initiated or caused by a primary lesion or dysfunction in the nervous system;
- ❖ *Neuropathy A* disturbance of function or pathological change in a nerve: in one nerve, mononeuropathy; in several nerves, mononeuropathy multiplex; if diffuse and bilateral, polyneuropathy;
- ❖ *Nociceptor* A receptor preferentially sensitive to a noxious stimulus or to a stimulus which would become noxious if prolonged;
- ❖ *Noxious stimulus*: a noxious stimulus is one which is damaging to normal tissues;
- ❖ *Pain threshold*: the least experience of pain which a subject can recognize;
- ❖ *Pain tolerance level*: the greatest level of pain which a subject is prepared to tolerate;
- ❖ *Paresthesia*: an abnormal sensation, whether spontaneous or evoked;
- ❖ *Peripheral neurogenic pain*: pain initiated or caused by a primary lesion or dysfunction or transitory perturbation in the peripheral nervous system;
- ❖ *Peripheral neuropathic pain*: pain initiated or caused by

a primary lesion or dysfunction in the peripheral nervous system.

IASP scheme for coding chronic pain diagnoses (166) (simplified):

- ❖ The classification is divided in groups (Axis);
- ❖ The first group (Axis I), concerned with the regions of pain, has generally not been difficult to complete;
- ❖ The second (Axis II), concerned with the systems of the pain;
- ❖ The third (Axis III) deals with the characteristics of the pain episode;
- ❖ The fourth digit (Axis IV) has to be filled in for each patient (Patient's Statement of Intensity) according to his or her particular report as to the severity or chronicity of his or her illness;
- ❖ The fifth digit (Axis V) is open to most argument (Etiology) because there is a great uncertainty about many of the mechanisms involved in the production of pain in different conditions.

Axis I: regions—give priority to the main site of the pain:

Record main site first; record two important regions separately.

If there is more than one site of pain, separate coding will be necessary. More than three major sites can be coded, optionally, as shown:

- ❖ *Head, face, and mouth;*
- ❖ *Cervical region;*
- ❖ *Upper shoulder and upper limbs;*
- ❖ *Tboracic region;*
- ❖ *Abdominal region;*
- ❖ *Lower back, lumbar spine, sacrum, and coccyx;*
- ❖ *Lower limbs;*
- ❖ *Pelvic region;*
- ❖ *Anal, perineal, and genital region;*
- ❖ *More than three major sites.*

Axis II (systems):

- ❖ *Systems Nervous system (central, peripheral, and 00 autonomic) and special senses; physical disturbance or dysfunction;*
- ❖ *Nervous system (psychological and social);*
- ❖ *Respiratory and cardiovascular systems;*
- ❖ *Musculoskeletal system and connective tissue;*
- ❖ *Cutaneous and subcutaneous and associated glands (breast, apocrine, etc.);*
- ❖ *Gastrointestinal system;*
- ❖ *Genito-urinary system;*
- ❖ *Other organs or viscera (e.g., thyroid, lymphatic, hemopoietic);*
- ❖ *More than one system;*
- ❖ *Unknown.*

Axis III: temporal characteristics of pain: pattern of occurrence

- ❖ Not recorded, not applicable, or not known;
- ❖ Single episode, limited duration;
- ❖ Continuous or nearly continuous, nonfluctuating;
- ❖ Continuous or nearly continuous, fluctuating severity;
- ❖ Recurring irregularly (e.g., headache, mixed type);
- ❖ Recurring regularly;
- ❖ Paroxysmal (e.g., tic douloureux);
- ❖ Sustained with superimposed paroxysms;
- ❖ Other combinations;
- ❖ None of the above.

Axis IV: patient's statement of intensity: time since onset of pain (decide the time at which pain is recognized retrospectively as having started, even though the pain may occur intermittently. Grade for intensity in relation to the level of current pain problem): not recorded, not applicable, or not known.

Mild

- ❖ 1 month or less

Medium

- ❖ 1 to 6 months
- ❖ more than 6 months
- ❖ 1 month or less

Severe

- ❖ 1 to 6 months
- ❖ more than 6 months
- ❖ 1 month or less

Axis V: etiology

- ❖ Genetic or congenital disorders;
- ❖ Trauma, operation, burns;
- ❖ Infective, parasitic;
- ❖ Inflammatory (no known infective agent), immune reactions;
- ❖ Neoplasm;
- ❖ Toxic, metabolic (e.g., alcoholic neuropathy, anoxia, vascular, nutritional, endocrine), radiation;
- ❖ Degenerative, mechanical;
- ❖ Dysfunctional (including psychophysiological);
- ❖ Unknown or other;
- ❖ Psychological origin.

An ideal taxonomy for pain should be complete and its categories should be mutually exclusive. Every item should have a particular explanation either on its own or with other items that resemble it. This is rarely, if ever, achievable in practice in medicine.

IASP items usually provided in descriptions of pain syndromes:

- ❖ Definition;
- ❖ Site;
- ❖ System(s);

- ❖ *Main features—prevalence, sex ratio if known, age of onset, pain quality, time pattern, occurrence in bouts or continuously, intensity, usual duration;*
- ❖ *Associated symptoms—aggravating and relieving agents;*
- ❖ *Signs laboratory findings;*
- ❖ *Usual course—including treatment, if treatment contributes to diagnosis;*
- ❖ *Complications;*
- ❖ *Social and physical disability;*
- ❖ *Pathology—or other contributing factors;*
- ❖ *Summary of essential features and diagnostic criteria;*
- ❖ *Criteria—when available;*
- ❖ *Differential diagnosis.*

Pain of psychological origin: associated with depression (in severe chronic diseases and in palliative care).

I quote the definition of IASP (166):

Definition: pain occurring in the course of a depressive illness, usually not preceding the depression (...).

- ❖ *Site: any part of the body; may be symmetrical, e.g., in a fronto-temporal occipital ring distribution, or in one place, e.g., at vertex, precordial, low back, genital;*
 - ❖ *Main features prevalence: probably common. Likely to appear in the majority of patients with an independent depressive illness, more often in nonendogenous depression, and less often in illness with an endogenous pattern;*
 - ❖ *Sex ratio: more common in females;*
 - ❖ *Pain quality: may be sensory or affective, or both, not necessarily bizarre; worse with intercurrent stress, increased anxiety. The pain may occur at the site of previous trauma (accidental or surgical) and may therefore be confused with a recurrence of the original condition. Usually aching or throbbing, may be described as sharp. May have both sensory and affective components;*
 - ❖ *Intensity: varies from mild to severe. Duration and intensity often in accordance with the length and severity of the depression;*
 - ❖ *Associated symptoms anxiety and irritability are common;*
 - ❖ *Signs tenderness may occur, but may also be found in other conditions and in normal individuals;*
 - ❖ *Relief improvement in the pain occurs with the improvement of the depression;*
 - ❖ *The response to psychological treatments or antidepressants is better than to analgesics;*
 - ❖ *Social and physical disability reduction of activities and work;*
 - ❖ *Etiology A link with reductions in cerebral monoamines or monoamine receptors has been suggested.*
- (...) It is important not to confuse the situation of depression*

causing pain as a secondary phenomenon with depression which commonly occurs when chronic pain arising for physical reasons is troublesome.

Severe persistent headache may be one of the symptoms of many disorders of both physical and psychic nature. At the same time, headache is one of the most frequently occurring forms of the psychosomatic disorder. Headaches may accompany the distressing situations in palliative care. In most cases, the acute fit of headache is the body's reaction to some psychological trauma or intense conflict. It is possible most people can remember the severe headache they used to experience after some emotional stress.

The International Headache Society (IHS) is the world's leading membership organization for those with a professional commitment to helping people affected by headache.

The classification of headache of the IHS appeared in 1988 [IHS, classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain, Cephalalgia, 8, Suppl. 7 [1988]]. *The classification of headache of the IHS: 'This list, which follows the first six sections (Groups II through VII) in which headache specifically appears in this volume, refers also to Groups IX-1 (IX-1.7 to IX-1.11) and IX-8. It is intended to provide a statement, where possible, of the correspondence between the categories of the IHS system and the IASP system. Because the structures of the two systems differ significantly, correspondence is often not easy to determine or is definitely not available. The principal feature of the structures, which provides this problem, is that the IASP system for head, face, and neck, follows the same pattern as that used in other parts of the body, i.e., proceeding through neurological, musculoskeletal, and visceral disorders as well as miscellaneous conditions. Some phenomena are also described in relation to the cervical spine. The IHS system also includes a number of acute categories that are lacking by design in the IASP system, and the IASP system contains categories that were not adopted by the IHS in 1988, but which should be adopted at this point and have no exact IHS equivalent (166).*

In present approaches to classification of chronic pain conditions have been studied other systematically implemented and evidence-based taxonomies. Furthermore, existing diagnostic approaches can incorporate available knowledge regarding the biopsychosocial mechanisms contributing to pain conditions. To address these gaps, the Analgesic, Anesthetic, and Addiction Clinical Trial Translations Innovations Opportunities and Networks (ACTTION) public-private partnership with the U.S. Food and Drug Administration and the American Pain Society

(APS) have joined together to develop an evidence-based chronic pain classification system called the ACTTION-APS Pain Taxonomy. *The ACTTION-APS pain taxonomy: this taxonomy describes the outcome of an ACTTION-APS consensus meeting, at which experts agreed on a structure for this new taxonomy of chronic pain conditions. ACTTION-APS Pain Taxonomy includes the following dimensions:*

- (I) core diagnostic criteria;
- (II) common features;
- (III) common medical comorbidities;
- (IV) neurobiological, psychosocial, and functional consequences;
- (V) putative neurobiological and psychosocial mechanisms, risk factors, and protective factors.

The diagnostic criteria have been consistently and systematically implemented across nearly all common chronic pain conditions' (167).

In psychosomatic disorders, we can observe one or more symptoms: pain symptoms, gastrointestinal symptoms, symptoms associated to the reproductive system, pseudoneurologic symptom. Pseudoneurologic symptoms comprise sensory loss or change, loss of consciousness (not fainting), interference with muscle function (skeletal, respiratory, vocal), and difficulty with coordination or balance.

The DSMs, fifth edition (DSM-5) (18) class of Somatic Symptom Disorders and Other Related Disorders, describes psychiatric conditions for the reason that the somatic symptoms are extreme for any medical disorder that may be present.

The DSM, fifth edition (DSM-5) class of Somatic Symptom Disorders and Other Related Disorders (18): We have seen previously that in DSM-5 somatic symptom disorder replaces somatization disorder with the following diagnostic criteria (18,21):

- (I) *At least one somatic symptom that results in significant disruption in everyday life;*
- (II) *Significant actions, thoughts, or feelings about the symptoms;*
- (III) *Somatic symptom actions, thoughts, or feelings are excessively time consuming, out of proportion to the degree of seriousness, or accompanied by a high level of anxiety. (DSM-5) (18).*

In psychosomatic disorders, either the pain or the symptoms related to the severe chronic illnesses cannot be always explained by a medical checkup. The interpretation for psychosomatic symptoms can be helpful as Zeng and Colleagues have described (141):

- (I) *to develop clinical thinking and improve understanding of physical symptoms to better implement the unified psychosomatic point of view;*

- (II) *to help establish guidelines for the diagnosis of somatic symptoms and mental illness;*
- (III) *to help establish guidelines for the treatment of somatic symptoms, such as the management of weak symptoms with antidepressant treatments and irritable emotional symptoms with anti-anxiety drugs;*
- (IV) *to understand in severe chronic diseases and in palliative care, which are the symptoms related to the illnesses and which symptoms are related to psychosomatic disorders (141).*

The treatment of anxiety and psychosomatic symptoms in palliative care

The Treatment of psychosomatic symptoms

Treatment of psychosomatic symptoms in palliative care is difficult. It responds best to a psychologically oriented physician who is able and willing to take final responsibility and therapy for both physical and psychological care.

An empathetic doctor-patient interaction is important to receiving help with psychosomatic symptoms. A single palliative care therapist with experience managing symptoms can be important cut down on unnecessary examinations and treatments. The focus of the therapy is on improving daily functioning, not on only cure symptoms. Suffering decrease is always a significant part of getting better. Working in a multidisciplinary team should be the greatest method to cure the psychosomatic disorders in palliative care.

Cognitive symptoms can be treated with cognitive-behavioral therapy. Pain and neurophysiological symptoms can be relieved by medicines and local and systemic anesthesiologic and physical treatment. It is worth noting that the methods intended to increase understanding of bodily symptoms from additional perspectives should differ from patient to patient and implement different individual therapies (141-144,149,166,167).

The therapeutic goal is to decrease superfluous and often damaging medical treatments and to increase the patient's wellbeing. The therapist is expected to continue to search for medical and psychological interventions that make the patient accept a psychological explanation for the symptoms. It is sometimes recommended to effect a successful referral to a psychiatrist by highlighting the disabilities related to the emotional background (168,169).

Pain therapy

In pain syndrome, pain is the focus of the patient's suffering.

It is always connected to the search of medical therapies, even if it is related to psychological causes. The syndrome may be acute or chronic, and may occur in association with a severe chronic disease (170-172).

Pain is one of the most common and stressful symptom in severe chronic diseases in need of palliative care. An estimated 25% of cancer patients and 25 million people die in pain each year. Effective pain and symptom management are the core elements of palliative care that purposes at reducing suffering and improving wellbeing (173).

The WHO defines palliative care as *"an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and treatment of pain and other problems, physical, psychosocial, and spiritual"* (174).

The most of cancer patients have advanced disease. For them, the only important treatment goal is pain relief and palliative care. In 1996, the first edition of the publication of WHO *"Cancer Pain Relief with a Guide to Opioid Availability"* planned a system for relief of cancer pain, based on a small number of relatively inexpensive drugs, including morphine. Field-testing in several countries demonstrated the effectiveness of the scheme in most cancer patients. The second edition takes into account many of the advances in understanding and practice that have occurred since the mid-1980s. Each part of the book has been added on opioid availability. It is significant to understand that cancer pain management should be accepted as part of comprehensive palliative care, not only in adults, but also in children (175,176).

Palliative care is an approach that improves the quality of life of patients, children, young and old, and their families who are facing the challenges associated with life-threatening illness. This is achieved through the treatment of physical, psychological and socio-spiritual suffering, by means of early identification, assessment and treatment of physical pain distress and the many psychosocial and spiritual problems.

Understanding the pathophysiology of the psychosomatic symptoms in palliative care supports in choice of therapies plans to treat the suffering of the psyche on specific body situations. Therapy choices comprise standard opioids in cancer and other painkillers, psychotropic medications, alternative herbs and supplements. Other choices include biofeedback, cognitive-behavioral methods, hypnosis, meditation, progressive relaxation, acupuncture and many different types of holistic approaches (177).

In addition to the pharmacological therapy used in

any physical symptom and for somatoform disorders, it is important to avoid addicting the patient to excessive analgesics when it is possible. This concern should never dissuade physicians from providing adequate pharmacological analgesia to relieve pain at the end of life. There is a great deal of empirical evidence that such patients are commonly deprived of appropriate pain relief. When in severe chronic diseases the pain is exacerbated by a psychosomatic problem, generally the only pharmacological therapy does not work, even if we use a high dosage of medicines and opioids. Pain therapists can treat chronic pain with adjuvant psychological and spiritual approaches that improve wellbeing and give to the patient a better control of the pain (171-173,177).

In cancer patients, we have to consider that the cancer infiltrating on bones, nerves or other organs in the body produces pain. Sometimes pain is related to the cancer treatment: some chemotherapy drugs can cause neuropathic pain as numbness and tingling in the hands and feet or a burning sensation at the place where they are injected. Radiotherapy can cause skin redness and irritation. Nevertheless, some pain may have nothing to do with the cancer. Guidelines for the use of drugs in the management of chronic and cancer pain have been published by the IASP (166), WHO (175,176), USA National Institutes of Health (NIH) (178,179), European Association for Palliative Care (180), Scottish Intercollegiate Guidelines Network (181), USA National Comprehensive Cancer Network (182), and other scientific Academies. Healthcare professionals have an ethical obligation to ensure that, whenever possible, the patient or patient's caregiver is well-informed about the benefits associated with their pain management options.

Given a complete history, physical and psychological checkup, and correct clinical, diagnostic and laboratory tests, the nature of the patient's symptoms habitually becomes reasonably clear.

Today we know practical and proven clinical, pharmacological and psychological tools to aid in the management of the psychological symptoms.

The pharmacological management of pain, anxiety and psychosomatic symptoms

We can do some consideration about the most common: *pharmacological therapy for the psychological symptoms in psychosomatic medicine and in palliative care*, suggested by *WHO International Pharmacopoeia* (183):

- (I) *Antidepressants: SSRIs are used in psychosomatic disorders to treat depression, anxiety, and obsessive-*

compulsive spectrum disorders associated with physical symptoms as skin diseases. Side effects of SSRIs include nausea, diarrhea, insomnia, or sedation. SSRIs should be started at low dose and titrated upward. Onset of effects of SSRIs is slow, usually taking 3 to 6 weeks;

- (II) *Tricyclic antidepressants are also used in psychosomatic disorders for depression and obsessive-compulsive spectrum disorders. Amitriptyline, is the tricyclic sometimes prescribed when is associated a neuropathic pain. The NE and dopamine reuptake inhibitor bupropion, an aminoketone antidepressant, is less commonly used;*
- (III) *Antipsychotics: typical (dopamine receptor antagonist) antipsychotics are sometimes used for psychoses associated with psychosomatic symptoms. Atypical (serotonin-dopamine antagonist) antipsychotics are used for treatment of resistant cases of obsessive-compulsive spectrum disorders, as a second agent in addition to SSRIs;*
- (IV) *Anticonvulsants: gamma aminobutyric acid (GABA) elevators are used in psychosomatic medicine for relief of pain, itching, or paraesthesias associated to peripheral neuropathies;*
- (V) *Anxiolytics: benzodiazapines are controlled substances because of their potential for abuse and addictive dependence. They tend to be sedating. In psychosomatic medicine, they are used for severe chronic stress and anxiety. Generally the short-acting benzodiazapines are preferable;*
- (VI) *Sedatives: sedating antihistamines are used for dermatological psychosomatic disorders for pruritus, dermatographism, and urticaria. Hydroxyzine and promethazine are also mildly to moderately anxiolytic. In addition, doxepin has antidepressant properties.*

Complementary and alternative medical treatment (CAM)

In recent years, CAM treatment has increased important interest (184). Even though the list of CAM has improved over the years, the Office of Alternative Medicine (established at the NIH in the USA) currently identifies five major categories (185): (I) Alternative Medical Systems; (II) Mind-Body Interventions; (III) Biologically Based Therapies; (IV) Manipulative and Body-Based Methods; (V) Energy Therapies.

Many patients suffering from psychosomatic diseases have a good response to a combination of multicomponent pharmacological treatments as CAM therapies and

psychological therapies. In some severe diseases, patients can learn to relief suffering with psychological therapies as adjuvant to drugs (for example with self-hypnosis).

Treatment strategies for the management of psychosomatic symptoms and disorders in palliative care consist of a variety of pharmacological and nonpharmacological therapies related to the very different symptoms, as well as CAM therapies (185).

The adjuvant use of CAM therapies is well accepted by most patients. Evidence-based guidelines aim to assist health care therapists in the choice of treatment possibilities. However, the first choice of treatments is pharmacological therapy.

The complementary pharmacological therapies: herbs and supplements

Several authors (177,186) reviewed herbal therapy and use of herbs and supplements in medicine. Additional researches about specific herbs, their management, metabolism, and adverse effects is available in the: *PDR for Nonprescription Drugs Dietary Supplements and Herbs care (187)*, *The Complete German Commission E Monographs (188)* and in many other textbooks and monographs. Some psychoactive plants that may have some pharmacological impact on diseases as anxiolytic and antidepressant are of particular interest in psychosomatic therapies. Sarris (189) reviewed herbal therapy in psychiatry. Other studies are on the *current PDR for Nonprescription Drugs, Dietary Supplements and Herbs for details of their actions, interactions, adverse effects, and literature references*.

The international guidelines assigned their approval to a set of pharmacological treatments, complementary pharmacological therapies, and nonpharmacological treatments, which included physical therapies like physiotherapy and acupuncture, many psychosocial interventions and psychotherapies like cognitive-behavioral therapy, clinical hypnosis, self-hypnosis, mindfulness, meditation and multicomponent treatments.

The Complementary, physical NON pharmacological therapies

Biofeedback

Biofeedback can improve the patient's cognizance of anxiety and help them to relax, increasing well-being in psychosomatic disorders that are connected with stress or severe chronic diseases. Biofeedback can help reducing stress, anxiety, muscular tension (188) and Raynaud's syndrome (190-192). Biofeedback can also help reduce the stress response that tends to aggravate many inflammatory skin disorders. Hypnosis can be added to biofeedback to

increase relaxation and enhance the effects obtained by biofeedback (193).

Acupuncture

Acupuncture is a therapy that origins in Traditional Chinese Medicine and is based on over 4,000 years of empirical evidence. The method involves the insertion of thin needles into detailed points and channels of energy (meridians) on the person's body. According to Chinese Traditional Medicine, the theoretical element Qi (vital energy) flows in the human body along the channels of energy, called meridians. Acupuncture has been revealed to reduce pain and anxiety in several randomized controlled trials (194-198). Acupuncture acknowledged a positive recommendation from the National Institute for Health and Care Excellence (NICE) for its use in back pain (199) and headache/migraine (200). Acupuncture due to its safety (considering all possible contraindications) and the minimal number of side effects is increasing popularity among patients. Acupuncture has frequently been described to be beneficial in oncological care in reliving side effects of chemotherapies. Many researches of acupuncture specify its possible role in fighting the following symptoms: nausea and chemotherapy-induced vomiting, pain, vasomotor symptoms, fatigue, anxiety, depression, insomnia, lymphedema after mastectomy, and peripheral neuropathy (201,202). Acupuncture therapy aiming at reliving pain and anxiety has a statistically significant result comparative to placebo or no treatment environments.

Massage

Pain is a multi-dimensional symptom in psychosomatic medicine and in palliative care and may be better addressed through an adjuvant holistic intervention. Massage therapy is generally used with patients for pain management. Massage therapy should be strongly recommended as a pain controlling option and health-related quality of life, compared to other active therapies (203). Massage therapy safety and research challenges, as a viable pain management option, are discussed in numerous researches (203-206).

The psycho-socio-spiritual interventions

Communication and Interviewing techniques

Communication in severe chronic diseases is a very important way in the development of the therapeutic relationship that should occur between patients and therapists, and the importance of it is well recognized by therapists working in palliative care (207-209). Some rules for the Communication and Interviewing Techniques are:

- (I) Ask open-ended questions;

- (II) The narrative interview: take time to talk with patients and listen to their narrations;
- (III) Structured interview: this is also known as a formal interview. The questions are asked in a standardized order. These are based on structured, closed-ended questions;
- (IV) Unstructured interview: these are sometimes referred to as 'discovery interviews' and are more like a 'guided conversation' than a strict structured interview. They are sometimes called informal interviews. An interview schedule might not be used, and even if one is used, they will contain open-ended questions that can be asked in any order. Some questions might be added/missed as the Interview progresses (209).

The language the researcher uses should be selected to the specific ethnic habit of the persons being studied. For instance, the interviewer must modify the phrases and the words to join the psycho-social background. It should be well-known that interviews may not be the best technique to use for researching complex themes as people may feel more relaxed completing a questionnaire. Interviews take many forms, some very informal, others more structured (207-209). The palliative care therapists encourage a background that will simplify and give empathy to the interview procedure with the aim of relieving stress, anxieties and supporting wellbeing for patients.

Cognitive-behavioral methods and psychotherapies

Psychotherapy is based on regular personal communication between the patient and the therapist, to help a person change and resolve problems in preferred ways. Psychotherapy aims to increase an individual's well-being and mental health, to alleviate worrying actions, beliefs, compulsions, thoughts, or emotions, and to improve relationships and social skills. Some psychotherapies are considered evidence-based for treating some diagnosed mental disorders.

There are over a thousand different psychotherapy methods, which are based on many different schools of psychology, ethics and methods. Generally they involve one-to-one sessions, between patient and therapist, but some others are conducted with groups, including families.

Cognitive-behavioral psychotherapies can change dysfunctional habits by interrupting and altering dysfunctional thought patterns (cognitions) or actions (behaviors) (210) that damage the organs and the body in psychosomatic syndromes. Cognitive behavioral therapy (CBT) is a psychosocial intervention that is the most commonly used evidence-based practice for treating

mental disorders. CBT studies the growth of personal coping schemes that target solving present difficulties and changing unhelpful patterns in cognitions (e.g., thoughts, beliefs, and attitudes), behaviors, and emotional regulation. At the beginning, it was studied to treat depression, and is now used for a quantity of mental health conditions. The CBT model is based on the basic knowledge from behavioral and cognitive psychology. CBT is "problem-focused" and "action-oriented". It is used to treat specific problems related to a diagnosed mental disorder, and the therapist's role is to assist the patient in discovery and working on effective stratagems to address the identified goals and decrease symptoms of the disease. CBT is based on the belief that thought alterations and maladaptive behaviors play a role in the development and maintenance of psychological disorders, and that symptom, and related distress can be relieved by improving new information-processing skills and coping mechanisms. CBT is used in both individual and group settings, and the methods are often studied for self-help applications (211-216).

Patient and family education

The key issues of patient education are outlined Medical Care. Key patient educational issues include the following:

- (I) The therapist recognizes the patient's symptoms and suffering;
- (II) The evaluation and monitoring of symptoms;
- (III) Not all symptoms specify evidence of a pathological illness;
- (IV) Physical symptoms not due to a defined disease often remit spontaneously;
- (V) It is very important to recognize key life stressors and causes of anxiety;
- (VI) Sometimes stress reduction may produce development in physical symptoms.

Family education is very important for the efficacious managing of somatic symptom disorders in palliative care. For the patient's family members, this education should include the following:

- (I) Discuss the severe diseases' diagnosis;
- (II) Help the patient to increase the normal functions;
- (III) Help the patient to debate any symptoms with the family doctor;
- (IV) The family doctor should direct any necessity for subspecialty evaluation;
- (V) Family members should pay attention to the patient and spend time with him/her;
- (VI) Family members may help by organizing hobby activities if psychosomatic symptoms are present.

Clinical hypnosis and self-hypnosis for relieving anxiety and psychosomatic symptoms in palliative care

Clinical hypnosis is a psycho-socio-spiritual intervention in palliative care. Several researches have provided evidence for the effectiveness of psychological interventions, as clinical hypnosis and self-hypnosis, as an adjuvant therapy-add to therapy-, in the treatment of chronic pain, anxiety and anxiety-related symptoms in severe chronic illnesses and in palliative care (89,90,104).

“Hypnosis is a procedure involving cognitive processes (like imagination) in which a subject is guided by a hypnotist to respond to suggestions for changes in sensations, perceptions, thoughts, feelings, and behaviors. Hypnosis can alter and eliminate the psychological experience of pain and also the brain’s neurophysiologic processing of pain.” [American Society of Clinical Hypnosis (ASCH): <http://www.asch.net/public/generalinfoonhypnosis/definitionofhypnosis.aspx> and American Psychological Association (APA), Division 30: <http://psychologicallyhypnosis.com/info/>].

Medical hypnotherapy includes teaching the patient enter into a trance state of self-awareness, focused attention, selective wakefulness, and amplified suggestibility for a specific goal such as relaxation, pain or anxiety relief, or psychological symptoms relief.

Numerous research studies founded that psychological interventions and clinical hypnosis are effective in the therapy of acute and chronic pain and anxiety, in disabilities, cancer-related pain, and in severe chronic illnesses (15-17). Hypnotic analgesia constantly results in greater reductions in a variety of pain outcomes compared to no treatment/standard care (15-17).

Neurophysiological changes occur because of hypnotic analgesia therapy. Researches with fMRI and PET scan technology have discovered that an amount of brain areas involved in the perception of pain (e.g., somatosensory cortex, anterior cingulate cortex, insula) are evidently affected under hypnotic suggestion (89,90,104,106,112).

We can contemplate clinical hypnosis as a non-pharmacological and noninvasive adjuvant therapy in pain and anxiety therapy and their correlated symptoms, in severe chronic illnesses and in palliative care (15-17,89,90,104,106,112).

Clinical hypnosis is effective for treatment of chronic pain and symptoms, and hypnosis therapy consistently produces significant reductions in pain associated with a variety of chronic-pain problems. In addition, hypnosis is normally found to be more effective than

no hypnotic interventions such as simply distraction (15-17,89,90,104,106,112).

The hypnotic therapy for pain and anxiety relief characteristically starts with an induction and suggestions for deepening the trance state. These are followed by several suggestions for reduced pain, anxiety and other distressing symptoms. For chronic pain management, posthypnotic suggestions are practically always given that any pain reduction achieved will last beyond the session, and/or for the patient to reconstruct a sense of comfort and inner- deep relaxation.

Hypnotic analgesia and symptoms’ relief, also often make use of self-hypnosis training, and patients are provided with a CD by the therapist, so they can improve their skills at home (15-17,89,90,104,106,112).

Anxiety is addressed as a special topic of mind/body problematic concerning profound interaction between mental and physical distress in chronic illnesses.

The scientific studies underline that for those who experience significantly distressing anxiety, it often goes undertreated. The current scientific literature recommends that although benzodiazepines effectively reduce anxiety symptoms in the short term, at this time, there is not sufficient evidence to determine the long-term benefits of these medications. Benzodiazepines can function as ‘safety behaviors’ in acute suffering situations.

Hypnosis and self-hypnosis therapy is a rapid and safe adjuvant to medication, for the management of psychosomatic symptoms and anxiety-related conditions in palliative care (15-17,89,90,104,106,112,215,216).

Clinical hypnosis in pain therapy and palliative care refers to the conscious calm awareness of cognitions, sensations, emotions and experiences.

The stages of hypnosis used in severe chronic illnesses and palliative care, are frequently achieved also through mindfulness and meditative states, which are practices that cultivate open-minded mindfulness of the present moment.

The importance of clinical hypnosis in palliative care means present moment of the mind and awareness to the present. It has the specific meaning of relaxation of the body and the mind. Its purpose is absence of misperception or non-forgetfulness. It is manifested as attentive awareness, or as the state of meeting an objective field. Its close foundation is strong perception, and inner awareness of our self.

Hypnosis therapy is increasingly being developed in Western psychology to relief a multiplicity of mental and physical diseases. Scientific researches into hypnosis generally falls under the umbrella of positive psychology,

but hypnosis is considerable much more. Research has been ongoing over the last 20 or 30 years, with a surge of interest over the last decade in particular.

In this model, self-regulated concentration, as an important component of attention and consciousness, comprises self-awareness of one's present thoughts, feelings, and surroundings. Consciousness is extremely elusive from the empirical point of view. Hypnosis is a modified state of consciousness (17,98,102).

We perceive pain and suffering as separate objects. The physical, anatomic, and neurobiochemical manifestation of pain is cured by medicines, nerve blocks, opioids and surgery.

The neuropsychological and psycho-spiritual suffering component involves the patient's:

- (I) Desperation and nonacceptance;
- (II) Distress of the unknown and anxiety;
- (III) Negative evaluation of the meaning of suffering;
- (IV) Sensation of no time limit to suffering;
- (V) Self-destructive moods of culpability and resentment.

These feelings and sensations are quite responsive to hypnotherapy. When psychological and spiritual suffering is distant, pain have a tendency to become acceptable or may even disappear.

Clinical hypnosis increases psychological resilience. It is an individual's predisposition to cope with stress and difficulty.

This coping may outcome in the individual "bouncing back" to a previous state of normal functioning, or simply not showing negative properties. In all these occurrences, resilience is best understood as a development. It is often supposed to be a peculiarity of the individual personality. Most researches today, show that resilience is the consequence of individuals being able to interact with their situations, and the developments that either promotes well-being or protects them against the overwhelming influence of risk factors. These processes can be individual coping with strategies, or may be helped by Clinical Hypnosis.

There are numerous approaches of practicing relaxation, hypnosis and self-hypnosis. Each technique is determined by our objective of practicing it. One of the shared objects of these practices is to obtain a tension free, relaxed, joyful and peaceful state of the mind, so that we can look for the day-to-day challenges of life, connections with other people and at the end inner spiritual healing in a more creative, secure and detached way.

During hypnosis, our body relaxes and our thoughts become more focused. Like other relaxation approaches,

hypnosis lowers blood pressure and heart rate, and modifies the brain wave activity (110,112). In this relaxed state of consciousness, we can feel fully awake mentally, and may be highly responsive to a positive suggestion.

There are numerous techniques of hypnosis for suffering relief (17):

- (I) Reframing the problem (pain and suffering);
- (II) Becoming relaxed, then absorbed in deep inner concentration (deeply engaged in the positive words suggested by the hypnotherapist);
- (III) Inner self-introspection (letting go of rational sensations);
- (IV) Inner self-awareness;
- (V) Returning to usual sensations;
- (VI) Reflecting on the experience to improve resilience with self-hypnosis.

Hypnosis is a deep mental and physical relaxation, which permits us to access our inner emotions, memories and inner self. Hypnotherapy uses this state of relaxation to enable us to tap into our inner means and gain access to the root cause of a problem.

When we are daydreaming, we are very calm and serene, we are 'here and now' and nonetheless we are perfectly aware of what is going on around us. We go into hypnotic states several times during our day and not even know it is hypnosis.

This is closely what it is like when we are hypnotized.

We can experience an overall feeling of calmness throughout our entire body and mind. At all times, we are very conscious of what is going on around us. We are in whole control, and we can interconnect successfully with the hypnotherapist and with our inner self, through our higher consciousness.

Our subconscious is a fragment of the mind that is employed in hypnosis.

Our subconscious mind regulates all involuntary bodily functions, including our heart rate, breathing, blood pressure, hormone production and elimination system.

What is so significant about the relationship between the body, hypnosis and our subconscious mind? Deep hypnosis is the open door to our inner self, and our spiritual higher consciousness.

The technique for the self-introspective hypnosis in palliative care (Brugnoli MP) (see Supplementary) (17)

When we give to our life the awareness of death to reside in its natural place in our pathway, we obtain many opportunities to open ourselves to the light of inner life. We will never fear the unexpected, and we will encounter

love and compassion when we can understand that death is a natural part of our lifecycle.

It is a gratifying feeling to be able to sit with our dying friend-patient to make him or her to understand the mystery of lifecycle, compassion and love (17).

It is gratifying to be able to make him or her, relax in the face of death, with peace and spirituality and to feel that this love is increasing in his or her heart.

It is rewarding to interconnect with our patient that death is not the end but is *“the natural way of life”* and is something much healing and more divine, than will never be possible in our physical life (17).

Researches on the neurophysiologic growth of the brain and the mind, can give us some assistance in providing medical therapies for the body, but are of no help for the spiritual suffering, a healing that we can learn through the path towards our inner consciousness (17).

It is therefore, important also in the medical therapy and in palliative care, to study the expansion of the consciousness to take us towards new horizons. There are many researches today connected with the latest physical and neurophysiologic theories that will help depressed individuals who are tired and bored with the everyday life. Through these new studies on clinical hypnosis, this work might solve *“life’s struggle”*, *“the obscure fear”* that is the cause of so many psychosomatic symptoms (17).

Through clinical hypnosis at the end of life, we can wake up our mind to the new breeze of our spirit.

Through clinical hypnosis at the end of life, we can wake up our mind to new important pathways.

Through clinical hypnosis at the end of life, we can consider our soul as part of the whole being.

Through clinical hypnosis at the end of life, we can reflect more on the spiritual sides (17).

At the end of life, some people understand spiritual inner-states and the awareness of inner-self.

They experience it for sure because they can feel a sensation of happy emotions. They call this like a Mystic experience, and this is described in all religions and cultures throughout the history of man. We can call it an inner spiritual knowledge. This entering to the state of inner consciousness can be compared to what someone calls Enlightenment, Samadhi, Ecstasy and Nirvana (17).

The philosopher Jidd Krishnamurti (217) was saying: *“every being is the world”*.

Through this pathway, at the end of life, we will discover the inner happiness and calm of our body and soul (17).

At the end of our life when all people consider this the

darkest time of our soul, and all the philosophers consider this like an obscure night of depression, in reality, this will be the moment of the ‘healing’ and the inner light.

The inner light will never end; the light of the soul will enclose our heart and soul until the fusion of all matter. Thomas Merton the Trappist monk who died in 1968, in his book *“Dialogues with Silence”* wrote: *“What can I say about the void and the freedom I experienced when I passed the threshold of that ½ a minute. This experience was enough for a whole life because it was a completely new life? There is nothing that I can compare this with. I could call it the void, but it is an infinite freedom, to be able not to have any needs nor to feel myself and be in the pure joy which lies beyond all beings. Do not let me build walls around it otherwise I will be forever locked outside”* (17).

Meditative states for relieving psychosomatic symptoms in palliative care

We can consider meditative states as psycho-socio-spiritual interventions in palliative care. As well hypnotherapy, many other types of psychological intervention (psychotherapies like Viktor Frankl’s existential logotherapy, meaning-centred group therapy and numerous others) can improve resilience and coping and minimize suffering for both patients with advanced illness and their caregivers. Medical and psychological dissertation on end-of-life therapies has focused principally on symptom control and pain management to including more person-centred methods to patient care and healing from suffering.

It has been proposed that several techniques of meditation may reduce stress by increasing awareness and acceptance.

There are different ways, depending on the different schools of thought, to reach meditative stages.

In addition to many forms of psychotherapies practiced in western countries, spiritual therapy through meditative states also, help to encourage the dying patients to discovery meaning and resolution in living until their death. In eastern countries, there are many types of meditative techniques, which today are practiced and studied in the entire world (218-220).

Meditation is integration: therefore, its main goal is to reassemble the divided part of the human being. If we say that the body is different from the mind, and that the mind is different from the soul, this means that we are disaggregating.

How can meditation take us back to the integration if it is something that separates the body from the brain, the brain from the mind or the mind from the soul? If when

we close our eyes, and we keep silent, we consider this meditation then we all meditate for hours during our sleep. Why don't we call it meditation? Isn't that silence? During the sleep, the mental function stops but we cannot consider this meditation. All of us can meditate, but the goal is far, far from us, because we are not able to control our senses, our mind and our intelligence.

In this paper, we consider yoga meditation for anxiety and psychosomatic symptoms' relief in palliative care.

Yoga (Sanskrit = Listen) (221) is a group of physical, mental, and spiritual practices or disciplines which originated in ancient India. There is a comprehensive multiplicity of Yoga schools, practices, and goals in Hinduism, Buddhism, and Jainism. Among the most well-known types of yoga, practiced also in western countries, are Hatha yoga, Rāja yoga and yoga Nidra (221).

We can date the origins of yoga back to pre-Vedic Indian traditions, as it is cited in the Rigveda. It was most likely developed in India's ascetic and śramaṇa movements, around the 6th and 5th centuries BCE. The time of original texts relating yoga-practices is uncertain, varyingly credited to Hindu Upanishads (220). The Yoga Sutras of Patanjali date from the first half of the first millennium CE, but only gained prominence in the West in the 20th century. Hatha yoga texts appeared about the 11th century with origins in tantra (222,223).

Integral Yoga, Kriya Yoga, Kundalini Yoga, Royal (Raj) Yoga, Sahaj Yoga, Surat Shabda Yoga, Transcendental Meditation, Yoga Nidra, Mindfulness, Zen meditation and many others, may be recommended as spiritual therapies for anxiety and psychosomatic symptoms' management during palliative care.

Patanjali has suggested Abhyasa-Vairagya Yoga for "stress elimination", Kriya Yoga for "stress management" and Ashtanga Yoga (Royal Yoga) for "stress prevention". When stress is aroused, people must manage it, and further it must be prevented and then complete elimination is possible. Further, proper practice of yoga increases the power of stress tolerance. Thus, Yoga practices are to be practiced with patience and perseverance to keep us healthy (223-225).

Yoga Nidra and psycho-social spiritual healing (Anirudh Kumar Satsangi)

Yoga Nidra also called 'yogic sleep' is a modified state of consciousness very similar to introspective hypnosis. We can obtain it during the middle time of waking and sleeping. It is like the "going-to-sleep" stage. During Yoga Nidra, the

body and the mind are completely relaxed; however, the person becomes systematically and increasingly aware of the inner world following conventional verbal directives. This state of consciousness (Yoga Nidra) is different from other types of meditation in which concentration on a single focus is essential. Throughout Yoga Nidra the practitioner is in a state of light 'pratyahara': four of his or her five senses are internalized, that is, inhibited, and only the hearing still joins to the instructions. The yogic goal of both paths, deep relaxation throughout Yoga Nidra and meditation are the same: a state named 'Samadhi'. Samadhi means 'to the way of liberation'. Yoga Nidra is among the deepest possible states of meditation while still conserving full awareness (226-228).

Julie Friedeberger [1996] writes: "*I have practiced yoga Nidra since 1985 and have been teaching it almost as long. In 1993, I was diagnosed with breast cancer, yoga Nidra became a central, indispensable part of my yoga practice, which as a whole was the key factor in my recovery, and in the longest term my healing.*" (229).

Yoga Nidra is particularly appropriate to anyone living with a life-changing illness as a severe chronic disease or cancer. In our study, we suggest our views on the meaning of Yoga Nidra for persons who are living with cancer or other severe chronic diseases and need a palliative care approach.

The word "Yoga" means union: yoking, uniting, bringing together. Yoga and healing have essentially the same significance. The Oxford Dictionary defines the word "heal" as: "*To make whole, or sound; to unite, after being out or broken.*" So yoga and healing share both meaning and objectives: integration, harmony, and equilibrium on all stages of our inner consciousness. Yoga is a holistic therapy: it heals by making us complete (230-234).

We all need, and seek, psychological and spiritual healing, especially at the end of life. When a person faces a diagnosis of a severe disease, this need becomes crucial. The diagnosis can leave one feeling fragmented.

All the phases of yoga have a part to play in the psychological and spiritual healing development. Cultivation of body exercises, breathing movements, meditation, and the practice of Yoga Nidra, all develop the conditions in which physical, emotional, mental and spiritual health can advance. Yoga Nidra is essential healing. When frequently practiced, relaxation calms the sympathetic nervous system and activates the parasympathetic nervous system indicative of meditative calm. It decreases the anxiety and stress that decrease immune function and generates the state that improve it. Severe chronic diseases are multifaceted illnesses

with physical, psychosocial and spiritual problems. Yoga Nidra can be a healing practice that can bring about change on a psychological and spiritual profound level. Every single exercise of the training of Yoga Nidra works to release the blocked energy.

Working in therapy with Yoga Nidra can help the patient to recognize and agree the reality of the disease situation, even if it is difficult. Yoga Nidra can help us to practice the positive emotions it brings up. These positive emotions are repressed during the severe chronic diseases, but once they have been brought into our inner consciousness they have a psychological and spiritual power on inner healing. The essential reality for the people with cancer is that his/her life has suddenly undergone a deep change.

Practicing Yoga Nidra generates an inner positive atmosphere beneficial to the development of new positive attitudes. They can change the meaning for his or her life. The illness has become a challenge, even a blessing, and an incentive for making positive variations. This new positive pathway can guide to the healing process for mind and spirit. On a deeper level a positive, inner modification of awareness may arise, a shift that drives the individual's spiritual pathway from desperation to inner joy (235-238).

We know four important steps to practice Yoga Nidra:

- (I) Sankalpa;
 - (II) The rotation of awareness;
 - (III) The pairs of opposites;
 - (IV) Visualization.
- (I) The "Sankalpa" is a state of resolution, a proclamation of positive intent. It "works", because we have it deeply in the immense world of the subconscious when our mind is quiet, relaxed, and ready to engage it. Sankalpa guides energy on the way of healing and spiritual serenity: it motivates, cares and sustains the way to inner healing, a way not restricted to the conscious level. Patients with cancer, principally those who have been practicing yoga and yoga Nidra for a few years or longer, have skilled and acquired to its power; and, observing this in them and in ourselves, we can understand that Sankalpa is the soul of the yoga Nidra.

Sankalpa cannot regulate the outcome of the healing process, but its influence to it should not be under-valued. It is positive and important throughout the pathway, even at the end of life. In that final stage, the present becomes extremely precious, and the future must be considered in a different way (because there is still a future).

- (II) The rotation of the awareness is when the body

and the mind are brought to a deeply relaxed state. The rotation explains us to let go. 'Letting go' is an important meaning for us (239). A person with severe chronic disease has an important agreement to let go. All things are challenging. Many things have to do with our illusions. Our most particularly tenacious illusions are: (i) the illusion of immortality; (ii) the illusion that our body is exempt from the diseases.

Nevertheless, the reality is that all the bodies, even the bodies of yogis and yoga teachers wear out and break down. The great spiritual masters have not been exempt: Bhagavan Sri Ramana Maharishi died of cancer, so did Sri Ramakrishna, among others. In the end, the reality is that we are all going to have to let go of life itself, and realizing it now helps prepare for the diseases and death. The rotation of awareness in yoga Nidra gives us practice in letting go, towards our death (240). The rotation of awareness, and yoga Nidra as a whole, may also help to renew the person's broken connection between mind and body.

- (III) In the 'pairs of opposites' as in the rotation of awareness, our mind moves rapidly, from the uncomfortable suffering' sensations, or from painful emotions, letting go each emotion before proceeding to the next. This part of the practice combines the 'letting go' instructions. In working with the pairs of opposites we learn that yes, we can let go. People dealing with severe diseases, the 'pairs of opposites' is an extraordinarily useful learning. As we think with the opposites, we come to understand that however powerful the terror around the disease, however profound the anxiety about the future, however painful the illness, these emotions will not last persistently.

- (IV) The different types of visualizations in yoga Nidra (the rapid images, the chakras, healing) can calm fears. They can be acknowledged, to create our inner healing. Practicing visualization in yoga Nidra, when our inner self is open and sensitive, supports us to let go of painful suffering of body and mind. It contacts and releases our Samskaras, the impressions grooved into our inner consciousness by our experiences. This carries a freedom from some of the psychological, emotional, and karmic origins of diseases and heals our spirit.

Yoga Nidra stimulates Sakshi, the observing consciousness. Sakshi communicates us detachment, the

quality that enables us to stand back from the disease is happening to us. A Severe chronic disease changes our life.

Through practicing yoga Nidra, we grow our controls of detachment. When we do this, when we bring our rational mind up out of the darkness and shine, we can enlighten our spirit. This is the light of Sakshi. Then we can accept our illness and desperation and ultimately let them go.

Yoga Nidra and the healing journey

When I examined the people in my class (Satsangi A.) at the Yoga Therapy Centre, for their opinions on how yoga Nidra has affected them, one young woman said she had been having a difficult time with chemotherapy since she joined the class. Yoga Nidra constantly gives her feeling of inner calm, inner peace, a feeling that the fear and desperation have ceased (239,240). Attentiveness in religions and spirituality as a foundation of resilience in coping with severe chronic diseases has been a vivid increase in last years. Spirituality is more and more acknowledged by medicine as an important aspect of healthcare, especially in palliative care (241-245).

It is a great privilege to practice the immense self-knowledge of Yoga Nidra, especially at the end of life (246).

Yoga consists of three practices: concentration, meditation and realization. In the above case we have seen the various meditative states during the practice of yoga Nidra. Any meditation type can give the same result and can be effectively used as anxiety and stress management during palliative care.

Conclusions

Pharmacologic and non-pharmacological therapies for anxiety and psychosomatic symptoms in palliative care are integrated into a framework of knowledge that supports taxonomy, evaluation, assessment and treatment of many different symptoms. They contemplate bottom-up and top-down processes involved in biochemical and neurophysiological control in the different manifestations of the psychosomatic symptoms. Aggressive pharmacological approaches should be used carefully and, when possible, added with holistic medicine as clinical hypnosis and meditation.

Some questions have been posed for the socio-psychological and spiritual treatment of psychosomatic symptoms in palliative care:

- (I) What are the goals of treatment for pain, anxiety and psychosomatic disorders in palliative care?

- (II) Should solely a psychiatrist treat patients with anxiety and psychosomatic disorders?
- (III) Which type of anxious patient should be cured with a psychological treatment?
- (IV) Which are the modalities of psychological treatment in psychosomatic disorders?
- (V) Which psychiatric assessment and therapies should be used for the treatment of psychosomatic disorders in palliative care?
- (VI) Which patients should be treated by psychotherapies, clinical hypnosis and meditative states?
- (VII) Are there any shortcuts to psychotherapy in dealings with anxiety at the end of life?
- (VIII) Clinical hypnosis and Spiritual approaches, could be integrations or shortcuts to psychotherapy at the end of life?
- (IX) Which could be the specific role of clinical hypnosis, self-hypnosis and meditation to treat pain and anxiety in severe chronic diseases in palliative care?

The psychological and spiritual therapies like meditative states and clinical hypnosis may relieve anxiety and symptoms associated with psychosomatic disorders in palliative care. The therapy focuses on treating:

- (I) Negative thoughts;
- (II) Behaviors that increase pain and anxiety;
- (III) Total pain (physical, psychosocial and spiritual pain);
- (IV) Physical symptoms;
- (V) Fear for death;
- (VI) Anxiety;
- (VII) Stress;
- (VIII) Depression;
- (IX) Insomnia;
- (X) Suffering.

Moreover, on improving:

- (I) Dignity;
- (II) Communication;
- (III) Compassion;
- (IV) Self-esteem;
- (V) Resilience;
- (VI) The discovery of inner-self;
- (VII) A conscious and serene aware at the end of life;
- (VIII) Higher consciousness;
- (IX) Spirituality;
- (X) Love.

Various strategies have been successful in treating psychosomatic disorders in palliative care. Severe distress

may necessitate psychotherapy to reveal and work through the psychological or psychiatric causes. Moderate stress may be relieved by physical exercises and rehabilitation, exercises of body relaxation, meditative techniques, psychotherapies, clinical hypnosis and self-hypnosis. These therapies enable the patient to become more aware of internal processes and in that way increase some control over bodily reactions to stress. In many circumstances, a spiritual care joining a support group with friends and family, can decrease stress and thereby improve resilience and spiritual healing at the end of life.

As emerging fields of study, meditation and clinical hypnosis in palliative care have the potential to offer an innovative deal to our understanding of the human mind and consciousness in severe chronic illnesses.

In palliative care and at the end of life, resilience, inner-consciousness and self-awareness should be the inner deep energy that regulates our skills going far beyond human understandings. Our mind is conscious energy. The brain is the dynamic organ, which simplifies the connection between “our” mind, spirituality and matter.

Current studies suggest that aspects of clinical hypnosis and meditative states in palliative care may be linked to important knowledge on consciousness and awareness in the bio-psychological dimension of the individuals. Such researches have the potential to provide important insights into possible relationships between aspects of brain, body, consciousness, awareness, religiosity/spirituality and physiological and psychological processes that affect health and well-being.

The ‘world out there’ is fundamentally the same as the ‘world in us’. Making the intention to encounter the sacred of our inner- self, is sitting silently or walking underneath a nearby watercourse or tree.

This deepening of awareness is healing not only for individual ‘spiritual growth’ but leads to a way of ‘being in the world’ and ‘being in the moment’ that is compassionate of the shapes of balance and harmony that reflect the mandalic design? of things as they were intended to be: here and now.

With this image of our patients, in palliative care and at the end of their life, we are capable to approach and cure them on the virtues of Compassion, Forgiveness, Love and Universal Consciousness.

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Footnote

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Supplementary

The technique for the self-introspective hypnosis in palliative care (Brugnoli MP)

Let's dedicate a little time only for ourselves.....
And let's find the most comfortable position possible.....
with eyes open or closed.....
whichever way we like.....
as time passes serenely.....
as time passes slowly.....
as time passes very slowly
we enter in a state of wellbeing.....
great serenity.. great tranquility.....great wellbeing.....serenity.....
tranquility.....
nothing else matters
we take a deep breath
and exhaling we slowly let go of all our thoughts.....
we let go.....
we let ourselves go.....
in this great serenity..... great calm.....
great wellbeing.....
relaxing.....great relaxing of our body and mind.....
relaxing muscles.....relaxing tendons.....
relaxing nerves.....as time passes.....
nothing bothers us any more.....
our hearts contemplate this peace
outside noises slowly...slowly disappear.....
and as time passes.....
and as time passes slowly.....nothing bothers us any more....
this sweet wellbeing cradles us
our heart cradles us in this peace
immersed in this serenity
we let go.....we let go serenely.....
in this particular state of relaxation.....
which is not awake...not sleep...
we are enjoying this particular state of the relaxation of our body....of our muscles....
and of our nerves.....
and for some momentwhile time passes.....
and everything around us.....everything within us.....
is at great calm.....
is at great tranquility.....wellbeing...relaxing...relaxing.....
we are relaxing.....relaxing.....relaxing....
deeply and completely.....deeply and completely...deeply and completely....deeply. deeply...deeply.. deeply...deeply.....deeply and
completely....
even more deeply...even more completely.....
we are immersing ourselves in a sea of tranquilityof relaxation.....of calm.....calm.....
of pleasant feelings.....
at all levels....
calm.... of calm..
of pleasant feeling..... of pleasant feeling....
at all levels..... at all levels.

physical level..... physical level...
mental level..... mental level.....
spiritual level...spiritual level.....
in this serene moment...
only peace....
Serenity.....
We can feel
the light of our self.....
and the spirit is enjoying the infinite.....
the spirit

is enjoying.....
this moment of great joy for the soul and for the spirit.....
this moment of immersion in the light of the soul and the spirit....
beyond the time and space.....
beyond time and space.....
beyond time and space....
the time and the space....
towards the infinite.....
towards the infinite.....
very good..... very good.....
we are living this moment so intensely....
charged with new energy.....

this moment of great physical and psychic relaxation
and we are recharging all of our body...
and our mind...here and now...
here and now....
we are recharging our body and mind.....
we are again recharging our body and mind...
and when we are going to restart our day,
after this relaxation....
all of our mind and body will be recharged.....
all of our mind and body are recharged
full of physical and mental energyrich of mental and physical energy...
.....

now let's take a deep breath.....
and let's leave with our mind from this wonderful natural place.....
let's start to feel where our body makes contact on what we lying...
....but still keep this feeling of wellbeing.....
wellbeing of our mind and body.....
and this feeling of wonderful new energy we have just experienced ...
let's start slowly to return to us being awake,
but still keeping within ourselves this feeling of calm, tranquility and happiness that we have just experienced.
now let's take another deep breath.
and slowly... RETURN TO BEING AWAKE...
serene and in peace.