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HUMANIZATION OF THE CARE RELATIONSHIP: NEUROSCIENTIFIC ASPECTS AND APPLICATIONS IN MEDICAL EDUCATION

L'UMANIZZAZIONE DELLA RELAZIONE DI CURA: ASPETTI NEUROSCIENTIFICI ED APPLICAZIONI IN PEDAGOGIA MEDICA

Chiara D'Alessio
Università degli Studi di Salerno
chdalessio@unisa.it

Abstract

The work falls within the pedagogical field of medical humanities, essential dimensions of an authentic medicine. Health education is crucial in the approach to life: ethically it is based on respect for the dignity of the human person as a capacity, fragility, openness to reciprocity and gift. Personalist anthropology defines man as a multidimensional bio-psycho-socio-spiritual uniqueness, favoring a holistic notion of health as harmony and integration of personal energies, a dynamic process that involves, for a subject inserted in a cultural and social context, the succession of progressive balances throughout life.
Health promotion starts from a unitary, socio-cultural and gender vision of the data related to the person, awareness of the need for clear and human communication with family members, collaboration between health care professionals, analysis of clinical, relational, ethical and social aspects in the treatment of disease. Prevention, diagnosis and therapy must include the analysis of behavior and its alterations within the subjective experiences, integrating symptoms and structural and functional signs in a global and unitary evaluation. The work focuses specifically on the neurobiological correlates of the care relationship and stress related to it, proposing humanizing pathways able to contain the effects.

Il lavoro rientra nel campo pedagogico delle *medical humanities,* dimensioni essenziali di una medicina autentica. L'educazione alla salute è cruciale nell'approccio alla vita: eticamente essa è basata sul rispetto della dignità della persona umana come capacità, fragilità, apertura alla reciprocità e al dono. L'antropologia personalista definisce l'uomo unicità multidimensionale bio-psico-socio-spirituale, privilegiando una nozione olistica di salute come armonia ed integrazione di energie personali, *processo* dinamico che comporta, per un soggetto inserito in un contesto culturale e sociale, la successione di equilibri progressivi nel corso della vita.
La promozione della salute parte da una visione unitaria, socioculturale e di genere dei dati relativi alla persona, consapevolezza della necessità di comunicazione chiara ed umana anche con i familiari, collaborazione tra le figure sanitarie, analisi di aspetti clinici, relazionali, etici e sociali nel trattamento della malattia. Prevenzione, diagnosi e terapia devono includere l'analisi del comportamento e delle sue alterazioni all'interno dei vissuti soggettivi, integrando in una valutazione globale ed unitaria sintomi e segni strutturali e funzionali. Il lavoro si focalizza specificamente sui correlati neurobiologici della relazione di cura e dello stress ad essa legato, proponendo percorsi umanizzanti in grado di contenerne gli effetti.

Keywords
Neuroscience, care relationship, stress, humanization, medical pedagogy
Neuroscienze, relazione di cura, stress, umanizzazione, pedagogia medica

1. Neuroscience of the relationship of care

Several neuroscientific studies are connected with medical humanities. The neurobiology of the relational mind (Siegel, 2001; D'Alessio, 2019) shows how human connections are transformed into neural connections, conditioning the outcomes of thoughts and behaviors. The caregiver is described as a microsurgeon of the patient's neuronal networks.

In the interaction with the patient subtle differences in verbal communication lead to different results; even non-verbal visual stimuli (gestures and positions) convey information rich in meaning. Somatosensory inputs contain emotional information: being touched by a loved or trusted person while experiencing pain reduces the unpleasantness of the pain itself (Benedetti, 2012).

The patient's decision about the doctor's reliability is based on environmental stimuli such as facial expressions that stimulate the amygdala, which increases its activity if the facial expression is deemed unreliable and vice versa (Todorov, 2008). Oxytocin, a hormone that stimulates prosocial behavior, produced in the hypothalamus and secreted by the pituitary gland, causes an increase in confidence in the person, due to the presence in the amygdala of receptors for oxytocin which exerts an inhibitory action on it; amygdaloid activity is associated with the perception of a person's unreliability (which inspires distrust or fear): oxytocin inhibits this effect by binding to the neurons of the amygdala (Benedetti, 2012). The production of oxytocin is linked to the presence of signals, verbal and otherwise, with a reassuring effect.

Admiration and trust are also involved in the caregiver-patient relationship and related to each other (Immordino-Yang, 2009): admiration for moral virtue stimulates the inferior-posterior part of the posteromedial cortex and the anterior part of the middle cingulate, which process enteroceptive information; for aspects of concrete behavior (eg a manual virtuosity) it stimulates the upper anterior part of the posterolateral cortices, connected with the lateral parietal cortices that manage exteroception and musculoskeletal information (Benedetti, 2012).

Hope is defined as a positive motivational state based on a sense of goal-oriented winning energy and planning to achieve certain goals; it is made up of the expectation that the future is better than the present and the motivation to adopt suitable behaviors to favor it. Hope and a lack of it influence the course of a disease and the rate of mortality, so high levels of hope must always be induced in the patient (Benedetti, 2018). The lack of hope and the sense of helplessness associated with it involves the serotonergic and noradrenergic systems; activation of the serotonin receptors in the dorsolateral prefrontal cortex and lack of hope are negatively correlated: empathic words of comfort, trust, motivation give hope to the patient, who hopes more than any other (ib.).

Empathy induces isomorphic emotions to those of others and is different from the simple understanding of emotions or compassion. Empathy is mediated by two mechanisms: the emotional contagion that supports the empathic ability to share the emotions of others and the adoption of a personal cognitive approach which implies complex components thanks to which it is possible to deduce the emotional state of the other person (Hojat, 2016). The adoption of a personal cognitive approach activates the medial prefrontal regions, the superior temporal sulcus, the temporal pole and the temporoparietal junction, emotional empathy activates the somatosensory, insular and anterior cortex of the cingulate. There are two different neuronal networks for compassion: the network for social pain is associated with activation of the inferior-posterior parts of the posteromedial cortices while that for physical pain activates the superior-anterior part of the posteromedial cortices (Benedetti, ib.).

The role of mirror neurons is crucial, whose intensity of activation is related to the empathy between patient and caregiver. The activation of the areas of physical and psychological pain due to mirroring is independent of the physical state: the caregiver's brain 'feels' the patient's pain even though it is not in his/her clinical condition (Singer, 2004).

Empathic behaviors aimed at modulating the patient's brain by activating the nervous mechanisms of trust and hope starting from the diagnosis, can produce positive effects if implemented in the appropriate context. Conversely, negative interactions can induce hyperalgesia or

amplification of symptoms induced by anxiety and negative emotions. The quality of the care relationship is therefore crucial for the therapeutic outcome.

Medical pedagogy should be centered on the development of the ability, through empathy, to induce trust, hope, motivation and positive expectations in the patient, who is not seen as an "object" but as the subject in the creations of a new interactive relationship of care.

2. Neurobiology of stress

The genetic potential of an individual is expressed within social experiences that have direct effects on the way nerve cells are connected to each other. Traumatic or highly stressful experiences over time can have direct toxic effects on the brain: the hormones secreted in response to stress cause episodes of neuronal death at the level of the fundamental circuits of the limbic and neocortical areas responsible for the processes involved in the regulation of emotions; the final result will be a particular vulnerability to emotional disturbances: genes and experiences interact to create risk conditions for the development of subsequent pathologies, a risk that is ultimately expressed at the level of brain circuits (Lupien et alii, 2018). It is the hypothalamic-pituitary-adrenal communication channel that is involved in the body's response to stressful agents: the main molecules mediating messages in this mechanism are adrenaline and cortisol. There is also a phenomenon called "stress analgesia", whereby endogenous opioids (endorphins), which protect against the perception of pain, cause an analgesic state in emergency situations, which is obviously a survival mechanism (Carlino, Benedetti, 2016).

A very intense stress can also cause a block of memory functions. This effect is mediated by the neuroendocrine processes with which the body normally reacts to stress by activating the hypothalamus-pituitary-adrenocortical axis which typically provides an immediate and transient release of norepinephrine and a more prolonged response mediated by glucocorticoid hormones, released by the adrenal cortex and which affect carbohydrate metabolism.

Glucocorticoids have a direct effect on the hippocampus which has a high density of receptors specific for these hormones: a very strong stress can cause a transient block of its functions while a continuous stress can induce an alteration of the normal daily rhythms of secretion. When blood levels of cortisol are chronically elevated, it can lead to inhibition of neuronal growth and degenerative processes affecting the dendrites (ib.)

These phenomena are initially reversible, however, if exposure to high concentrations of glucocorticoids persists over time, neuronal death occurs: repeated stress causes neuronal atrophy in the hippocampus. Reversible atrophy if exposure is discontinuous; if permanent, it causes a cellular deficit in memory enhancement, linked to the functionality of the hippocampus. If elevated blood cortisol levels are present for 5 years or more, memory deficits will occur. The cortisol that reaches the brain and binds to the hippocampal receptors causes a disturbance of activity and an impairment of the memory system located in the temporal lobe to form explicit memories. When the stress persists, the hippocampal cells degenerate and eventually die (ib.).

The perception of stress regulates the secretion of adrenaline and glucocorticoids that stimulate the production of the corticotropin-releasing hormone, activating the components of the body's response to stress (endocrine and immune system). This hormone acts within the brain itself, in areas that are involved in stress and addiction, further increasing the secretion of adrenaline and glucocorticoids and forming a vicious circle between mind and body (ib.).

There is also a relationship between stress and immune parameters. Attachment has biological correlates related to oxytocin levels and serotonergic systems; loss and bereavement trigger a biochemical storm: the turnover of cerebral monoamines is altered, therefore giving rise to phenomena of apoptosis, production of nitric oxide, protein phosphorylation. In an animal forcibly separated from the attachment figures, the sensitivity and number of postsynaptic receptors for serotonin change: this situation is similar to that of clinically depressed human subjects (D'Alessio, 2019).

The breakdown of emotional ties leads to increased vulnerability to disease, increased morbidity (Gallese, Ammanniti, 2014) and higher scores on the insecure attachment scale. These

phenomena are correlated with greater lymphocytotoxicity in healthy subjects (Picardi, 2007). Neuro-images of the brain under stress show similar phenomena.

Stress is part of daily life if it is moderate and short-lived: when it is intense, long-lasting and acts on a developing brain it can leave permanent traces starting from fetal life. Oliverio (2009) explains that glucocorticoids interact with environmental toxins triggering mood disorders and modifying the stages of maturation. In the prenatal phase, maternal stresses, anxiety and depression lead to underweight newborns. Infants of stressed mothers are also smaller, and due to the high levels of circulating glucocorticoids in the maternal blood, they may have a less bulky hippocampus and cognitive problems. In early childhood, the hypothalamus-pituitary-adrenal system is sensitive to affective stress, such as a maternal depressive state (which involves a reduction in care or long periods of separation from the mother that the children can perceive as abandonment). However, the effects are reversible: if you take care of the babies in a couple of months, cortisol levels return to normal. In adolescence, the prefrontal cortex, on which executive functions and emotional control depend, undergoes intense maturation, accompanied by an increase in receptors for glucocorticoids, which modulate cognitive and emotional functions.

Stress can therefore generate forms of psychopathology such as depression and anxiety attacks. Following stressful events, mood disorders arise with a higher frequency than in adults. In adulthood, a large number of cases have been collected on post-traumatic stress disorders: there is generally a correlation between episodes of stress, more specifically various types of mental trauma, levels of glucocorticoids and forms of depression. In old age, glucocorticoid levels are higher than in young people and adults. Following stress, there is a further increase in cortisol which has a negative role on neuronal function, in particular on the cells of the prefrontal cortex, which are less able to communicate with each other due to a reduction in axon flow. Lasting stresses also accentuate the process of neuronal death in the prefrontal cortex which results in reduced cognitive efficiency. The sensitivity of the brain to stress and the consequent alteration of glucocorticoid production can repress or trigger the action of active genes in the nervous system (Powella et alii, 2013).

3. Stress in the nursing professions

Caregivers involved in invasive and painful procedures sometimes develop discomfort or defense mechanisms that tend to reduce negative emotions when observing patients' suffering. Attending and genuinely participating in suffering involves neural costs that can turn into stress if not followed by adequate recovery strategies.

Neuroscience research has highlighted the central neural circuits and biological correlates of affective and cognitive processes that participate in patient-care communication.

This relationship represents a particular type of relationship, characterized by levels of involvement and responsibility whose biological impact has been studied with different techniques. The study of the caregiver-patient relationship presents several problems, related to obtaining feedback in a natural setting and the use of non-invasive methods that allow seriality, consistency in observation and low costs. Examples of techniques used are: the detection of muscle tension by electromyography; of the electrodermal activity (GSR) related to the neurovegetative activity; heart rate, blood pressure, pulse; the EEG; blood cortisol levels (Benedetti, 2012). These measurements inform about emotional activation and the underlying cognitive processes.

Previous studies show that communication with the patient involves emotions that have central circuits and peripheral somatic correlates: spending time with person who is suffering causes stress and repeated activation of these circuits and can be followed by peripheral somatic effects. Some research has been conducted using electromyographic measurements on the patient "in situation" (Biondi, 2008) and it has highlighted the effects of emotional tension which, transformed into muscle tension, can induce persistent pain. The vegetative nervous system, which includes the neurobiological correlates of emotional responses, is divided into sympathetic and parasympathetic: the body follows the emotional effects. The threshold for cardiac

extrasystole changes based on the level of stress: repeated punishments on animals cause the threshold to be lowered to cause extrasystole with an electrical stimulus up to ventricular fibrillation, notoriously prior to death; in this we can find the explanation of myocardial infarctions with intact hearts, caused by psychic pain not sufficiently elaborated and therefore persistent, or of the so-called death from anguish or terror (ib.).

Research conducted on doctors at the time of communicating the diagnosis to patients showed that the doctor's emotional response is higher when doctor and patient are of the same sex and age: identification therefore leads to a greater emotional resonance. The electromyographic activity detected simultaneously on doctor and patient during the communication of a diagnosis shows a patient-doctor consonance in the type of muscle tension encountered, an index of empathic mirroring; the physician having a challenging or conflicting conversation with the patient experiences changes in heart rate and blood pressure (ib.). If this is done daily and for many hours, the costs associated with these efforts can be substantial. Not surprisingly, some categories of doctors are at higher suicidal risk (Nakao, 2016).

Using an empathic approach is associated with an emotional cost that varies depending on the case. Listening, reflecting, witnessing suffering, interacting and attending is fully engaging and costs at a deep, central and visceral level.

The neurobiological correlates of intersubjectivity can be seen in the functional architecture of embodied simulation, originally discovered with mirror neurons in the action domain, a basic feature of our brain that makes our rich and diverse intersubjective experiences possible (D'Alessio, 2019). The role of mirror neurons is crucial, whose intensity of activation is related to the empathy between patient and caregiver. The activation of the areas of physical and psychological pain due to mirroring is independent of the physical state: the caregiver's brain 'feels' the patient's pain even though it is not in his/her clinical condition.

Singer (2004) highlighted how observing a subject who suffers causes an automatic activation of the insula lobe and the anterior cingulate cortex as well as all the areas of the brain that elaborate the pain as physical discomfort rather than emotional pain derived from empathy. Even when the subject whose reaction is being studied is separated from the person who is suffering the brain areas of the pain are activated anyway by simply imagining the other's pain.

There is therefore an activation of the limbic system and of the cortical areas connected to it that is not peripheral and independent of sensory stimulation: sensory and affective pain centers in the brain are separated but the brain feels the pain even if the sensory organs are not activated.

Trying to ignore potentially painful stimuli also costs money: removal also has costs. When the mind tries to suppress a reaction there is an equal neurotransmitter consumption and the possibility of somatization (linked to the lack of processing of unconscious contents): this demonstrates the impossibility of separating the close interconnection between emotionality-affectivity and rationality in the professional life of the caregiver, which involves emotional costs, biological costs, receptor activation, difficulty in restarting the circuits. Healing satisfies: but it wears out.

Cynicism is often a consequence of the perception of cost, a defense mechanism. The aforementioned processes, in fact, involve high consumption of serotonin, dopamine, noradrenaline; the exercise of empathy burns molecular energies in the brain that must be continually renewed. The extra-professional life must allow the recovery of these substances.

This implies a recognition of the specific work-related stress of all helping professions which imply psychological and physical costs and the need for recognition, prevention and treatment. Heilig (2008) found a link between stress and alcoholism: stressed subjects would have a greater tendency to drink alcohol, in order to obtain sedative effects, and concurrently exhibit hypersensitivity to fear-inducing stimuli.

Therefore, stress has immunological, neurochemical, neuroendocrine and behavioral effects. The effects of stress hormones on the prefrontal cortex can determine the impairment of the ability to make decisions, with all the risks that this entails in the helping professions.

4. Protective elements against stress

The recognition of stress levels in the helping professions, followed by the activation of courses on communication, the promotion of social support, the improvement of teamwork, is an indispensable area of intervention in medical pedagogy.

Despite medical advances, there are still numerous signs of discontent due to psychological conditions and the quality of relationships in health facilities where there is a lack of communication, unwelcoming and unavailable environments, highly technological medicine but poorly empathetic towards the user. Healthcare professionals are confronted with the complex and painful problems of the patient and the diagnostic, therapeutic and communicative difficulties inherent in medical practice, frequently experiencing therapeutic impotence, pain, anguish and death. This can give rise to the tensions, frustrations and conflicts underlying the burnout syndrome.

Psychoneuroendocrinoimmunology (Benedetti, 2018) is a transdisciplinary approach that assumes the notion that the body participates in what happens on an emotional level. Scientific evidence shows that, having the nervous system connections with all other systems of the organism (respiratory, cardiovascular, endocrine, immune ...), the succession of traumatic life events unleashes a neurochemical storm that can last for a long time creating permanent damage.

Therapeutic successes, improvements and remissions depend to an important extent on the patient's psychological conditions, the degree of acceptance of the environment, the quality of relationships with operators, and empathy (Hojat, 2018). Correct communication, the channeling of creativity and positive emotions can favor, through complex neural mechanisms, the correct functioning of the immune system, improving the general tone of the organism and the functioning of all organs, as well as the possibility of recovery in the battle against the illness.

The methods of communication we use affect our and others' neurotransmitter structure: improved communication skills can affect both the quality of care and the reduction of stress.

Stress-protective elements within care institutions are identified in (Biondi, 2008a):

- Communication skills
- Efficient organization
- Effective leadership
- Teamwork and social support
- Conducting a sufficiently balanced extra-professional life.

These factors reduce stress and associated disorders.

Social support, the lack of which is related to heart disease (Strike & Steptoe, 2004) prevents the increase in cortisol and blood pressure induced by psychological stress. More than drugs, it seems to be the possibility of communicating one's psychological distress and real changes in the life structure that positively modifies neurotransmitter transmission. The brain is a non-linear but complex system, in continuous circular interaction between genetic disposition, neurotransmitter levels, evolutionary climate, present climate, meanings attributed to observable situations and behaviors. The concept of "chemistry of the mind" indicates that the internal world and life events interact with each other. Speech therapy touches many circuits that can work finer than many drugs, inducing a real "neurotransmitter gymnastics".

Psychotherapy is the process of communication and therapeutic relationship as seen from a humanistic point of view. There is growing evidence about the biological dimension of interaction-relationship when communicating. The terminology for the representation of psychological and psychiatric phenomena was in the past based on concepts and words that differentiate between the organic and the psychic, the physical and the mental, the neurochemical and the psychological explanation. It is necessary to review this orientation by suggesting the existence of a common organizing principle of the different pharmacological and psychotherapeutic therapies and their common final matrix.

According to Biondi (2008), the most biological therapy at the neuronal level, at the level of molecular plasticity and remodeling of neural circuits and networks is not pharmacological

but psychotherapy, which leads the patient to make decisions that involve real changes in his lifestyle. Even Kandel (2018), Nobel Prize for Medicine in 2000, supports this hypothesis with a lot of research that shows how psychotherapeutic interventions have well-defined correlates at the level of brain circuits and centers highlighted by neuroimaging, confirming existing evidence for biological healing.

Applying this concept to the educational environment, which is full of transformative relationships (it could be said that psychotherapy is a sort of adult education), there are numerous scientific evidences in the field of Educational Neuroscience (D'Alessio, op.cit.) which demonstrate that training can be a powerful neuroplastic factor in a variety of conditions. From this point of view, the educator would be a real neurosculptor of brain circuits.

Another promising area of research could be the study of the relationship between the quality of the result, the sense of professional satisfaction and their impact on the perceived stress levels of the caregiver. Could the level of satisfaction with one's job represent a neuroplastic factor acting on the basis of mechanisms contrary to those of stress? Research in this direction could provide valuable information.

5. Life of the patient and helping relationship

The implications of what has been discussed so far for the patient are considerable. The patient strongly perceives attitudes and behaviors related to stress in the caregiver. This is added to the often dramatic personal experiences connected to the disease, to any surgical intervention, to the often demanding and debilitating therapies and to the associated suffering. The importance of the patient's psychological conditions in the healing process is enormous: therapeutic successes, improvements and remissions depend to an important extent on his mental state, on the degree of acceptance of the environment, on the quality of relationships with operators (Benedetti, 2018).

The disease in fact disorients the identity of the person (Donnarumma & D'Alessio, 2008): it breaks in and disorganizes the rhythm of life, undermines relationships with one's body and with the world in which the person lives, often modifies and makes the patient lose professional and domestic roles causing a profound crisis, both biological - due to the suffering, discomfort, limitations it entails - and existential, due to the repercussions it has on the individual's lifestyle and planning.

This crisis can give rise to anxiety, agitation, anger, evasive behavior or hostility which must be interpreted as strategies (unconscious and automatic) to cope with the situation. Anxiety manifests itself through a continuous state of tension and agitation that can also degenerate into panic. It involves an increased perception of events, accompanied by the physiological expression of the sense of threat, connected to the fear of the disease, which includes physiological symptoms (dizziness, sweating, tremor, tachycardia, pain, difficulty in breathing, agitation, tension, weakness); perceptual symptoms (sense of unreality, hypervigilance, lightheadedness); difficulty thinking (confusion, amnesia, difficulty concentrating, reasoning, blocking). The determinants of the anxious experience are modulated by the personal meaning attributed to the circumstances that the individual experiences and by the judgment and assessment of one's resources about the ability to cope with such circumstances. In medical pedagogy, therefore, the need to promote relational skills in the training of care personnel clearly emerges.

An effective response is given by the approach defined as "helping relationship", which is not seen as a series of learnt standardized techniques, but rather a style, a way of being characterized by stable positive attitudes: hospitability, understanding, active listening and authenticity. In this way, it is possible to detect fantasies, awareness of truths, exaggerated fears or resignations, that is, the subjective interpretation of the experience of illness. On this information it is advisable to build one's own approach to care.

It is more useful to evaluate the degree of awareness, ideas and opinions that the patient has developed about his illness rather than wondering about the truths to communicate. Informing the patient about the procedures, the time needed, the methods, saves him unnecessary anxiety

and promotes positive reactions and collaborative attitudes. Instead, it is inappropriate to report doubts or therapeutic uncertainties, which could have the effect of decreasing the trust and reliability towards the treating staff. The effectiveness and validity of assistance to the patient cannot be measured only on the adequacy of the services provided or on the active management of the disease by the patient or family, but it will be the result of a valuable, constructive and significant relationship between the patient, the family system and operators.

Working with the patient includes:

- Bringing out the beliefs and experiences that accompany the evolution of the disease
- Providing realistic information on the curability of symptoms through the control of physical symptoms
- Changing the attitude towards the disease; orienting expectations on objectives that aim at quality of life
- Encouraging the patient to verbalize fantasies and freely express emotions
- Paying attention to the terms that the patient uses to describe the feelings and the degree of tolerance that he expresses
- Accepting the patient's expressive modalities
- Building acceptance attitudes towards aggressive ways
- Starting a positive confrontation when the patient is ready to take more appropriate positions
- Encouraging the presence and comfort of family members.
- The work of the care team includes:
- Starting a constant discussion, internally, on these issues
- Detecting the methods used by the patient to graduate the impact of the disease
- Evaluating attitudes towards therapy and treatment programs as an expression of the discomfort of relating to the disease
- Offering adequate opportunities to gradually pass from an attitude of avoidance towards the awareness of the state of illness to a gradual and progressive awareness.
- The care teams, in turn, must be helped in:
- Becoming aware of one's own inner context
- Communicating in a healthy and balanced way
- Freely expressing their fears and difficulties
- Reconverting discomforts and conflicts in a creative way.

This is in order to become aware of the difficulties in relationships with the patient and colleagues and to understand the beneficial effects of adequate communication on personal and relational problems and on the management of interpersonal conflicts. It is important to experiment with alternative ways of behaving and communication strategies, as a prerequisite for an improvement in relationships, facilitating the expression of feelings, conflicts and insecurities and allowing patients to become aware of the current situation and elaborate it in a creative and, where possible, even humorous way.

The contents of focus range from the relationship with the disease and the roles of the health worker-patient relationship, with particular regard to the specific difficulties and problems of each area; the concepts of congruence, empathic acceptance, self-disclosure and first-person communication; listening; the psychosocial aspects of the healthcare environment with particular regard to the main problems and conflicts existing in relations with the patient and with his relatives and caregivers; relations with colleagues within the operational team.

The methodologies are multiple and largely based on the possibility of using creative strategies, benefiting from their physiological effects on the organism, psychological structure and relationships.

They could include: theoretical lessons; self-disclosure laboratories; meeting groups favoring correct communication between operators, awareness and the ability to process their own experiences and discomforts; exercises and games of psychocorporeal expressiveness for the acquisition of group confidence and harmony; workshops of creative compositions: humorous reading and poetry; relaxation techniques (imaginative relaxation and autogenic training).

6. Sense of suffering and ethics of care

Even if you know you have a few minutes to visit the patient, enter the room, sit next to him, smile, take his hands. Meet him as the brother of a common destiny, not as a number. The relationship of care is the crucial aspect of health because an encounter based on a true alliance allows successful therapy.

In this way, healing becomes the desired goal, because it is the result of effective and totalizing care.

The relationship of care does not stop even when facing the most extreme suffering of an unfortunate outcome, which looks far beyond the physical aspect of a patient who is experiencing the pain of an irrevocable sentence.

The advancement of the concept of quality of life highlights how much postmodern culture is sensitive to the emotional and relational aspects of existence, as opposed to the rigidly intellectualistic or positivistic setting of previous years. In this sense, it is an element that has pushed medicine to overcome in many cases the strictly biomedical paradigm and to set itself new goals, such as that of healing even if it is impossible to heal, that is, to ensure a better quality of life for a chronically ill and terminal patient.

However, the notion of quality of life has its negative pole and calls into question the value of life itself. In the name of an alleged quality of life, one can question whether an existence marked by a handicap is worth living or deny that a chronic disease makes a happy life equally possible.

From this perspective, the psychological burden of the disease increases because it is seen under the aspect of inability and loss. The moral weight is also aggravated, as it appears exclusively as a limit to one's freedom of will and power, an unpleasant event that is described as a fact but which remains not understood in its meaning. We fail to reflect on the fragility that always limits the human being and, on the inability to totally dominate the natural course of things, leaving out the anthropological question.

In order to reverse the trend in the way of understanding health and disease, it is necessary to recover a greater ethical dimension: both the ability to question oneself about the meaning and the depth of one's experiences and a deeper awareness of the relationship they have with one's own freedom. It is therefore essential to combine the clinical and psychological approach to disease with an anthropological and moral approach.

Our work aimed to provide an overview of the biopsychosocial dimensions of the professions of care, within which the caregiver and patient can develop, recovering their cultural and personal baggage, a renewed image of their identity-professionalism understood as a daily experience of sense that is expressed in attitudes characterized by dedication, care and attribution of meaning to people and events connected to it. Which, even in highly dramatic situations, are always ideas for growth, as long as we are available to take them as such. Feeling good and ill therefore make sense exclusively in an area of authentic sharing: one does not live to be healthy or sick, but to recognize and be recognized. Ultimately, to love and be loved. Pain and suffering, lived in solidarity with others, become the pivot of rotation from negative to positive. But how is it possible to make sense of suffering?

Frankl (1972) talks about the existential meaning of pain. Even the simple man instinctively knows the possible meaning of suffering and understands how the ability to suffer is a value. Brave suffering is a performance. A sick person can transmit courage and consolation to other sick people and even to the doctor who becomes the mirror that reflects the exemplary image of him. Other sick people, turning their gaze towards this mirror, discover that nothing of what is asked to them is impossible. As for the doctor personally, in the awareness of the feasibility of this possibility, he will present himself to the patient quite differently, much more convinced, having a different effect on the patient. In the suffering of the other he discovers the possibilities of awakening the will to make sense of suffering. He received courage and consolation and now

he has to transmit them to others. Who has never lived this experience: that through the consolation of another one is himself consoled? Pain can therefore be a performance and a growth. Taking and accepting pain on me, I experience an increase in moral strength: the raw material, given by destiny, is reinstated on the moral level.

The sufferer can no longer decide his destiny from the outside but it is the experience of suffering that allows him to dominate his destiny from the inside in order to move it from an actual conception to an existential one. I have a disease that I cannot change and I am faced with the question of what to do with this disease and I begin with this. And then, while I take the fact to a higher level, I place myself, my own existence, on a higher level, where suffering is a performance and a growth, a maturation.

The man who grows beyond himself matures; the actual performance of pain is a maturation process. The man who matures himself by suffering, matures in the face of truth and suffering has not only ethical dignity, but also metaphysical relevance: he makes man insightful and the world transparent. Any attempt at a metaclinical interpretation of the meaning of pain leads to the conclusion that the sense of suffering man is resolved in transcendence; in immanence it remains unsolved.

And the question of the meaning of pain? Whoever – beyond any religious belief - wonders what is the meaning of pain, neglects that pain itself is a question, and that it is us who are being questioned, the suffering men, the *Homo Patiens*: he does not have to ask, but to answer, to give a solution to the problem of pain. He has to pass the test of making pain a performance. The reason for suffering lies in the way in which the imposed pain is taken upon oneself, in the way one suffers. It all depends on the point of view of the patient, on his attitudes towards pain. A pain that is due to destiny and therefore filled with meaning and able to allow the patient to understand the values of his attitudes. The answer that the suffering man gives to the question of why the pain and how he endures it is always a wordless answer; but, beyond the belief in a supra-meaning, it is the only meaningful answer.

A final word to the man who approaches the sufferer and suffers with him: like pain, it is important to live together, to suffer together. Being for him in the moments of silence, in the expressions, in the gestures, a really 'living' presence.

References

Benedetti F. (2012), *Il cervello del paziente*. Roma: Fioriti.

Benedetti F. (2018), *La speranza è un farmaco*. Milano: Mondadori.

Biondi M. (1997), *Mente, cervello e sistema immunitario*. New York: MacGraw Hill.

Biondi M. (2008b), *Biologia della relazione e della psicoterapia*. Relazione presentata al Congresso: "Neurobiologia dell'esperienza interpersonale". Roma, Università S. Tommaso,12-13 settembre 2008.

Biondi M., Mistretta M. & Roscioli C. (2008a), *Farmaci in psichiatria. Indicazioni terapeutiche approvate e utilizzo off-label*. Roma: Il Pensiero Scientifico.

Carlino E, Benedetti F. (2016), Different contexts, different pains, different experiences. *Neuroscience*. 2016 Dec 3;338:19-26. doi: 10.1016/j.neuroscience.2016.01.053. Epub 2016 Jan 28. PMID: 26827944.

D'Alessio C. (2019), *Pedagogia e neuroscienze*. San Cesario di Lecce: Pensa.

Donnarumma D'Alessio M., D'Alessio C. (2008), *La danza dell'identità*. Milano: Gribaudi.

Frankl V.E. (1972), *Homo Patiens. Interpretazione umanistica della sofferenza*. Varese: Salcom.

Heilig M.A (2008), Upregulation of voluntary alcohol intake, behavioral sensitivity to stressand amigdala Crhrl expression following a history of dependence. *Biological Psychiatry*, 63 (2): 146-151.

Hojat M. (2018), *Empathy in He*alth professions. Education and patient care. New York: Springer.

Kandel E. (2018), *La mente alterata. Cosa dicono di noi le anomalie del cervello*. Milano: Cortina

Kandel E. (2007), *Psichiatria, psicoanalisi e nuova scienza della mente.* Milano: Raffaello Cortina.

Lupien, S. J. et alii (2018), The effect of chronic stress on the human brain: from neurotoxicity to vulnerability to opportunity. *Frontier in Neuroendocrinology* vol. 49, 4, pp 91 – 105.

Nakao M. (2010), Work-related stress and psychosomatic medicine. *Biopsychosoc* Med-May26;4(1):4

Oliverio A. (2009), Lo stress e le età della vita. *Mente e Cervello*, VII, 55.

Picardi A. et alii (2007), Attachment security and immunity in healthy women. *Psychosomatic-Medicine*, 69(1), 40-6.

Powella D. et alii (2013), Social stress up-regulates inflammatory gene expression in the leukocyte transcriptome via B-adrenergic induction of myelopoiesis. *Proceedings of the National Academy of Sciences*.

Singer T. et alii (2004), Empathy for pain involves the affective but not the sensory compo-nents of pain. *Science*, 303, 1157-1161.

Strike P.C., Steptoe A. (2004), Psychosocial factors in the development of coronary arterydisease. *Progress in Cardiovascular Diseases*, 46 (4), 337-347.58

Todorov A., Baron S. G., Oosterhof N. N. (2008), Evaluating face trustworthiness: a model based approach. *Social cognitive and affective neuroscience*, 3(2), 119–127.